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Working Paper

German unification : the economics of transition

Kiel Working Papers, No. 468a

Provided in cooperation with:
Institut für Weltwirtschaft (IfW)

Suggested citation: Siebert, Horst (1991) : German unification : the economics of transition, Kiel Working Papers, No. 468a, http://hdl.handle.net/10419/572

Kieler Arbeitspapiere
Kiel Working Papers

Kiel Working Paper No. 468a
Revised and Enlarged

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THE ECONOMICS OF TRANSITION

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ISSN 0342 - 0787

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May 1991

This paper was presented at the Economic Policy Panel Meeting, London, 18. - 19. April 1991.

1. Introduction: The Policy Choices

In the transformation of a centrally planned socialist system into a market economy with private ownership, three major areas of reform have to be solved: establishing the institutional infrastructure, creating a stable currency and adjusting the real economy to the new economic environment, especially on the micro level (Siebert 1991b). In the German case, the institutional infrastructure and a stable currency represented issues of integration, namely the harmonization of the different institutional systems and the introduction of a common currency.

In addition to these broad areas of reform and harmonization, more specific issues had to be or still have to be tackled. To each problem corresponds a choice of policy options. The list of the most important policy choices is impressive:

i) The method of institutional and political integration: Article 23 versus Article 146,

ii) The method of monetary integration: Extension of the currency area of the D-Mark to Eastern Germany versus two different currencies with a flexible exchange rate,

iii) The method of privatization: Compensation versus reinstituting the previous owner. Privatizing agency versus a voucher system. Quick privatization versus Treuhand making firms profitable before privatization,

iv) The method of wage adjustment: Differentiation in the wage structure versus a general levelling of the wage rates in Eastern and Western Germany,

v) The method of dealing with unemployment: Subsidies to firms versus transfers to people,

vi) The method of restructuring existing firms: Market process versus structural policy,

vii) The method of closing the deficit: Cutting expenditures versus raising taxes or financing by bonds.

The most important policy choices have been made. In principle, institutional integration was accomplished at one stroke by Eastern Germany taking over the institutional system of Western Germany and by joining the Federal Republic according to Article 23 of the German constitution. The other option of institutional integration according to Article 146 of the German constitution would have implied an explicit debate on integrating the two constitutions; this would have been a time-consuming process envolving a one or two-year period and implying economic uncertainty, for instance in the area of private investment. After the integration of the new Länder according to Art. 23, the debate on revising the constitution can proceed with ease. Monetary integration was brought about at one stroke also by extending the currency area of the Deutsche Mark to Eastern Germany and by establishing the monetary authority of the

Bundesbank in the former GDR. The alternative to the currency union, a transitional approach with two currencies, might have been attractive from the point of view of using the exchange rate as a shock absorber for the East German industry and delegating the conversion of the currencies to the market. It is an open question whether such an approach might have stopped the emigration of East Germans in mid-1990 although the appreciation of the East German currency has contributed to unemployment which in turn may lead to migration in the future. Moreover, in a two currency scenario, the DM may have quickly driven out the East German Mark. In any case, political rationality, necessitating a quick unification, and the economic rationality of using the exchange rate as a shock absorber were in conflict. With institutional and monetary integration being accomplished, the remaining problem of transition is the adjustment in the real economy, especially in the firms. In the transition of socialist economies, the German case can be considered as a laboratory experiment in real adjustment.

There is a contrast between the medium and long-run positive economic prospects of German union and the problems of transition. In the medium and in the long run, the integration effect, the incentives of a new economic system and the capital accumulation effect (Siebert 1990c) will be hammering in the basement, similarly as Hicks (1950) viewed the role of autonomous investment in eventually moving an economy out of recession. With these medium and long-run positive prospects, why do we not observe a burst of economic activity in Eastern Germany as after the economic and monetary reform in West Germany in 1948, but

rather a fall of industrial output from July 1989 to November 1990 by roughly 50 %? As a reminder, after the reform of 1948, the index of industrial production rose by 50 % in the first five months (Statistisches Amt für das Vereinigte Wirtschaftsgebiet, Mai 1949), and annual growth rates of real GNP were 17 % between the second half of 1949 and 1951.

In the following, I analyze the specific aspects of the transition process. The factors that impede the quick realization of the positive effects from integration, from the new economic system, and from capital accumulation will be studied. And the main policy options will be discussed. In section 2, the adjustment of firms to the unexpected shock in their environment is analyzed. Then, establishing ownership and the privatization of firms especially the role of Treuhand, is investigated. In section 4, the J-curve of output and policies for take-off are examined, the transition to the market economy in Eastern Germany is compared to the West German experience of 1948. Policies for the take-off are reviewed. Then, in section 5, the impact of German unification on the macroeconomic policy situation is studied, including fiscal policy aspects, interest rate effects and exchange rate effects. The paper concludes with two alternative scenarios.

2. Comparative Advantage versus Initial Distortions: The Adjustment of Firms

From trade and integration theory, the unification of the two Germanies can be viewed as the integration of two economies which have a different factor endowment and which are at different levels of development. More specifically, economic integration can be interpreted as the addition of qualified labour, land and a partially obsolete capital stock to the West German economy. Merging two economies with different endowments implies integration gains. In addition, opening up a relatively closed economy to the international division of labour will bring gains from trade not only in the Heckscher-Ohlin context but also with respect to intra-industry trade (Siebert 1991b). These gains, however, cannot take effect instantly.

2.1. Initial Distortions and the Shock to the Socialist Firm

The core of the transition process from a socialist system to a market economy lies in the adjustment of the firm. The typical socialist firm is inefficient for a number of reasons: It was steered by quantity signals and had adjusted to distorted prices, in the commodity markets as well as in the factor markets. Commodity prices were determined politically; they were deformed because of an incomplete integration into the world economy, because of a multitude of several thousand (firm specific) exchange rates, because of subsidies and because of the monopolistic position of the socialist firm. The firm basically

represented the whole industry and was a monopolist protected from internal competition by governmental market delineation and from external competition by international coordination in the COMECON. Factor markets including a capital market were non-existent; energy costs were false and environmental costs were not signalled to the polluter. The incentive to innovate in terms of product quality and in terms of new production processes was extremely weak, so that firms are not competitive in international markets, especially with respect to product quality. The capital stock is old, for instance 70 % of equipment in manufacturing (in Western Germany 50 %) is more than ten years old and, due to COMECON-technology, was already outdated when installed.

The transition to a market economy must be understood as an unexpected shock in the environment of the typical socialist firm. Like dinosaurs, the huge "Kombinate" are exposed to a cosmic change in their economic conditions. The transition problem can be analysed as a change in the constraints: a sudden drop in the producer's price, a change from a monopoly position to a competitive situation, competition in product quality that was not known before, a modification in the system of subsidies and of external protection and an alteration in access to new capital from a "soft budget restraint" to a competitive situation in the capital market. Demand fell abruptly, and the existing capital stock became obsolete to a large extent. In making the existing capital stock obsolete, the transition to a market economy can be compared to a mega oil shock not only relating to

the price of one input but to a change in the most important parameters in the constraint set.

In order to model the adjustment problem of the typical firm assume that the firm maximizes the present value of cash flow for a given planning horizon T

$$\int_0^T [p(t)\, Q(t) - w(t)\, L(t)]\, e^{-rt}\, dt \qquad (1)$$

The firm starts from an initially given, obsolete capital stock

$$K(0) = K_o \qquad (2)$$

By attracting or accumulating capital, the firm can produce more efficiently; a simple way to model this is to distinguish between old (K_o) and new capital (K_N) and to make new capital more efficient than old capital. Thus, the production function is given by

$$Q(t) = F[K_o, K_N(t), L(t)] \qquad (3)$$

Net cash flow, i.e. net period profits π are defined as

$$\pi = p\, F(K_o, K_N, L) - wL - (\delta + r)[p_o K_o + p_N K_N] \qquad (4)$$

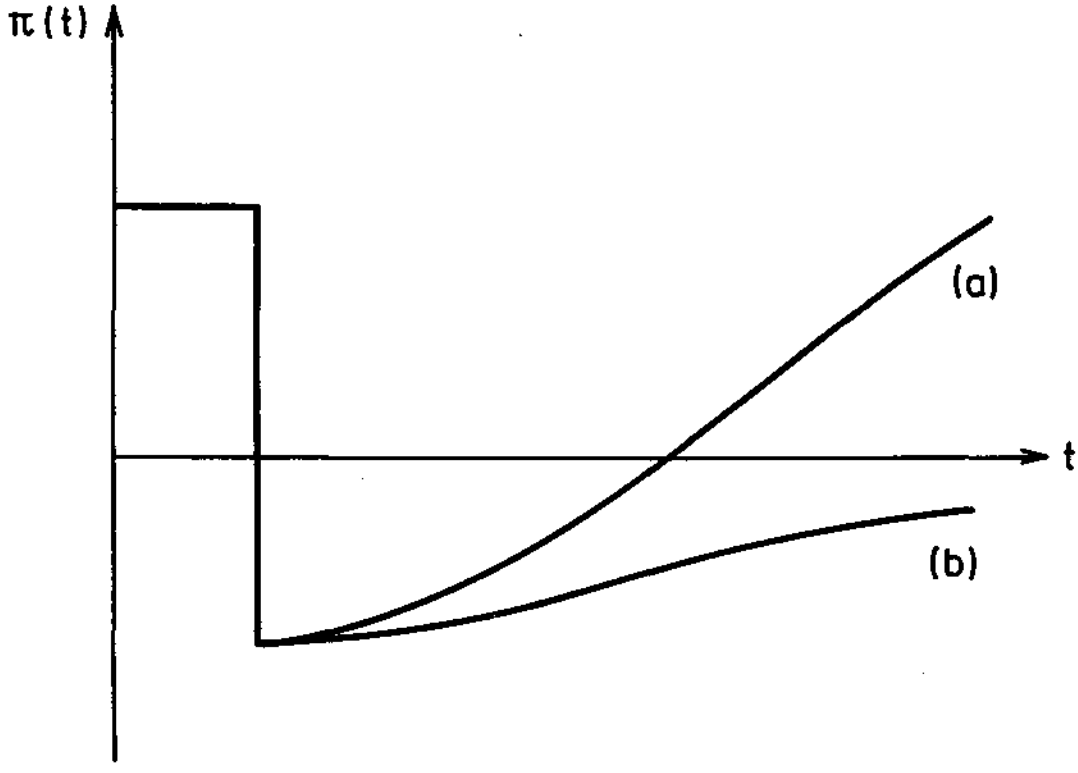
where p is the price of output, w the wage rate, δ the discount rate and r interest rate and p_o,p_N are the prices of a unit of the old capital or the new capital good (including the shadow price of adjustment costs if adjustment costs are explicitly considered). The term $p_o(\delta + r)$ represents the implicit rental rate of old capital. A firm is viable in the long run, if its

capital value Π is non-negative. This means that the present value of the net cash flow (including the user costs of capital and accounting for adjustment costs), is non-negative, i.e. if

$$\Pi = \int_0^T e^{-rt} \pi(t)\, dt \geq 0 \qquad (5)$$

In most cases the present value of the typical socialist firm for a given obsolete capital stock, that is $K_N = 0$, will be negative; then without adjustment, the firm is not viable. An intertemporal analysis determines to what extent the present value of the firm in the new environment can be increased with adjustment. This analysis shows how <u>period</u> net cash flows of the firm change over time and whether the present value of the firm is positive or negative.

FIGURE 1



With adjustment, we can expect two different scenarios for the time profile of net period profits: If net period profits in future periods can compensate the initial cash sink hole and lead to a positive present value of net profit, the firm is viable (case a in Figure 1). Then investment and adjustment costs pay off. In this case, a private investor will be willing to undertake the investment. If the net period profits of the future cannot compensate the losses of today (scenario b), the capital value of the firm is negative and the firm is not viable. It is apparent that viability of the firm is influenced by whether the firm has to earn the implicit cost of old capital or whether old debt will be forgiven.

Thus, the transition to the market economy reveals the inefficiency of the socialist firm, and output of the representative firm can be expected to fall; some firms have to close down. It is important to interpret the adjustment of industrial output not as a structural problem in the traditional sense, but as a transformation problem. Besides a change in the institutional arrangement - in the Wirtschaftsordnung - the economy has to adjust on the supply side, with new investment, new products, new firms, new locations, a reallocation of factors of production and a change in the sectoral structure as well as in the trade pattern.

The inefficiency of firms is reflected in the distorted sectoral structure. The sector structure of Eastern Germany was biased in favour of agriculture and manufacturing, and against services:

Whereas 47 % of total employment was in agriculture, energy and mining, and manufacturing, this relation is 37 % in Western Germany (Table 1). Western Germany had reduced employment in manufacturing from 10 (1970) to 8.7 mn. (1989), while Eastern Germany had increased it from 2.9 to 3.2 mn. during the same period. A more detailed picture of the sectoral structure of the ex-GDR is given in Table A1 in the Appendix.

Table 1 - Employment by Sectors in Eastern Germany and Western Germany, 1989 (shares in %)

	Eastern Germany[a)]	Western Germany
Agriculture, forestry and fishing	9.9	3.9
Energy and Mining	3.2	1.7
Manufacturing	34.1	31.4
Construction	6.1	6.6
Trade	7.8	13.0
Transportation and communication	6.8	5.6
Financial institutions and insurance	0.7	3.1
Restaurants and hotels	1.9	3.1
Services, public administration, defence and others	29.7	31.7

Source: DIW [1990a]; Staatliche Zentralverwaltung für Statistik [1989]; Statistisches Bundesamt [1989a]; own calculations. [a)] Rounding error.

Trade structure is distorted as well. In 1989, 72.6 % of East German exports went to the COMECON countries (the figure for West Germany is 4.6 %; see Table 2). This is the result of the intra-bloc specialization philosophy of the COMECON. Moreover, like all centrally planned economies, Eastern Germany has followed an import substitution strategy with respect to Western market economies attempting to produce the product set of the world economy. Its structure in basic industry, which historically used to be complementary to West Germany's structure, became more and more a replica of the West German mold, albeit on a less efficient level. Exports of the ex-GDR to the market economies were biased in favour of semi-manufactured and against finished manufactured goods.

Table 2 Export Share of Eastern Germany and Western Germany by Countries, 1989 and 1990

	Eastern Germany		Western Germany	
	DM mill.	%	DM mill.	%
Total				
1989	41,105	100.0	641,041	100.0
1990 (a)	38,072	100.0	642,654	100.0
COMECON countries				
1989	29,839	72.6	29,306	4.6
1990 (a)	30,495	80.1	27,469	4.3
Western industrialized and developing countries				
1989	9,208	22.4	594,320	92.7
1990 (a)	7,130	18.7	596,042	92.7

(a) Preliminary

Source: Deutsche Bundesbank (1991).

For the ex-GDR, the share of exports in GNP is estimated at 25 %. This is low for a small open economy. If the international division of labour is given its full scope, one would expect Eastern Germany to have an export share similar to that of countries of comparable size in terms of population, i.e., in the range of 40-50 %. Moreover, it is well established that regions in a country have a higher export share than countries of the same size. This gap in the export share indicates the magnitude of the transformation of the economy that has to be performed.

2.2. The Adjustment of Firms

With the institutional infrastructure and the monetary system being established, the microeconomic restructuring of firms is the central problem in the economics of transition. We have to differentiate between the adjustment of existing firms and the creation of new firms. With respect to existing firms ("Kombinate"), three aspects, though interrelated, must be distinguished: establishing legally independent organizational units, accomplishing economic efficiency and setting up private ownership.

Dismantling of the state-owned enterprises implies splitting up firms into smaller units. In the German case, by law 316 Kombinate were turned into 8,000 legally independent firms which still existed in a legal sense. Thus, in creating new organizational units a historical criterion was used. Breaking up government enterprises into smaller legally independent units in this way is somewhat arbitrary in economic terms, and it does not

yet solve the problem how to make these new units efficient. But a smaller unit is easier to handle and more flexible. In addition, the remaining 8,000 units have to be dismantled further if the sum of subunits resulting from breaking up the firm have a higher capital value than the firm ifself. Thus, breaking up large firms may be a way to increase the present value of the firm as defined in equation 5. If firms as a whole are not viable and have to be closed, divestiture must take place in order to privatize the viable parts. Moreover, organizational subunits of state monopolies should have the option to declare themselves as legally independent.

Making existing firms efficient requires a spectrum of measures ranging over a wide area. First, a firm has to establish the product or product set it can sell in the market. For instance, the firm may have to develop a new product. Second, firms tended to be as self-sufficient as possible producing their own inputs in order not to depend on the delivery from other suppliers. Thus, the production of intermediate inputs may have to be given up. This also applies to the repair department, to the transportation division and other functions. Third, new production technology will be necessary in most cases requiring investment. Fourth, marketing is needed and a distribution system (and service system) has to be built up. Moreover, there are many other aspects of the adjustment of firms including organizational changes, introducing new management techniques and, in most cases, reducing the work force. All these adjustments represent a supply side response to a shock. Supply side adjustment requires time. Adjustment will imply costs, and the issue is whether

adjustment will lead to a positive present value of profit or not. This determines whether a firm is viable and whether it has access to new capital. If the present value of profit (including adjustment cost) is negative, the firm is not viable and has to close down (see below).

Eastern Germany will experience a process of structural change similar to other West European countries in the past thirty years, only with less time available for adjustment. Ailing industries, which are not competitive on the international markets, such as shipbuilding and parts of the steel and textile industry, and pollution- and energy-intensive sectors will have to shrink. The underdeveloped service sector will have to expand considerably. The size of the structural adjustment needed is the result of the distortions arising from central planning.

An important aspect of the restructuring of the economy is the creation of new firms. A successful transition requires a Schumpeterian process of the formation of new and small firms. As a matter of fact, it is more important to have new firms than to restructure the old ones. New firms will soak up workers from the inefficient old firms and will help to solve the unemployment problem. Thus, conditions have to be established such that new firms can come into existence. Market entry barriers must be abolished, location space must be available and finance must be accessible especially for new and small firms. The old firms should not be allowed to sit on their location space, if they are not viable; protecting employment at inefficient units impedes the birth of new firms. It is worth while to recall that the

majority of employment occurs in the small firm; 79 % of employment in non-agricultural sectors in Western Germany is in firms with less than 500 employees (Schmidt 1990).

3. The Incentives of the Market System versus Ownership Uncertainty: Privatization

Moving from a centrally planned economy with government ownership of the means of production to a market economy will improve the incentive system of the economy and increase economic efficiency. Motivation of people will change. This holds for entrepreneurs, who were non-existent so far and for whom expected profits will represent a strong stimulus as well as for workers, for whom pay and effort will be more closely related. Economic decisions will be delegated to the market and will be depoliticized. Markets will allow gains from specialization; for instance, markets deliver products at the right time and the right place, so that large inventories are no longer necessary and idleness of labour and other resources can be prevented. In many cases markets substitute hierarchies (Williamson 1979).

3.1. Establishing Ownership

An important prerequisite for the incentive mechanism to play is property rights. With institutional integration according to Article 23, the new Länder took over the West German legal system so that property rights are clearly respected and there is no property right uncertainty per se. But the general respect for property rights does not yet solve the question who owns what; property rights certainty does not yet guarantee ownership certainty[1]. In the transition to a market economy, new owners

have to be established, that is property rights for specific pieces of land and for specific firms have to be assigned.

For the assignment of property rights, the following options were available:

- Reinstituting previous owners

- Starting a completely new allocation of property rights, for instance through a voucher system or by selling firms (and land) to new owners, and

- Giving property rights to the actual user.

Two main criteria were applied to the choice of the assignment method: respect for private property rights and the necessity of a quick transition including the impact on investment, growth and employment. Clearly, respect for private property rights dominated the choice. First, there was the political argument that you cannot start a market economy in Eastern Germany if the expropriations of the past are not corrected. Note that some important decisions were taken with the GDR government still in power. Second, there was the risk that the Constitutional Court would not have accepted a solution in which previous ownership was not respected. For instance, restricting restitution to those expropriated in 1972 and after and compensating in the earlier cases was not sincerely discussed. Also, a completely new allocation of property rights never was an issue. With no time available for an academic "*Gedankenexperiment*", the analytical

implications of the allocation of property rights in the transformation of a socialist economy were not thought through and were thus not available as a counter position that might have influenced the intellectual debate. Finally, giving the property rights to the actual users may be a possible approach in other cases of establishing ownership such as defining transferable emission rights in environmental policy, but this method is not applicable to the transition to a market economy because it would benefit the former nomenclatura.

With respect to the assignment of ownership the following decisions were taken:

i.) The basic decision was to reinstitute the previous owners who were expropriated since 1949 by the GDR-government (and those expropriated prior to 1945). Reinstitution will not apply to those who were expropriated by the Russian military governnment in the period between 1945 to 1949, the argument being that the Soviet Union explicitly required this as a condition for agreeing to unification. This procedure has been upheld by a decision of the Constitutional Court from April 23, 1991. Compensation will be used when pieces of land of different owners had been combined into new units which cannot be easily separated, for instance when land was used for construction (housing, roads, industrial buildings etc.). So far, 1,2 mn. claims of previous owners relating to 1.5 mn. properties have been registered. It is estimated that these claims account for one-third of all land (according to press reports). In the city of Dresden, 40,000 applications for restitution have been filed, but only 700 were decided (May 1991).

ii) Treuhand - the German privatization agency - has become owner of all joint stock companies that have been formed by law out of the "Kombinate" (§1 of the Treuhandgesetz). In addition, Treuhand is responsible for the publicly owned agricultural estates as well as forestry activities, and agricultural and foresty land which is used by cooperatives and individuals. This alone accounts for two-fifth of the area of Eastern Germany (28 % of agricultural land, 66 % of forestry land).

iii) Firms that were managed by municipalities and counties - and the land belonging to them - have become trustee ownership of the federal government (not of Treuhand). Municipalities can apply to obtain these firms. So far, there have been 16,000 applications. Public buildings are property of the respective political units (Länder, municipalities); there is special property of the railroads and the postal service.

iv) Publicly owned housing has been turned over to municipalities. All other assets have become property of the Treuhand.

In practice, it has proven to be extremely difficult to solve the ownership problem. First, assigning new property titles requires an assignment rule that can be clearly applied. However, the assignment described above implies an inconsistent allocation of property titles. The matching of owners and properties to land and firms does not yield disjunctive sets. One specific problem is that it is difficult to distinguish between the ownership of a

firm and the ownership of land. Second, for forty years title records have been neglected, especially for firms. Conflicting claimants are not unusual. Third, local administration has to reinstitute the previous owner and to decide the 1,2 mn. applications for reinstitution. So far, this has proved to be a severe bottleneck with decisions not being taken as of May 1991. Fourth, when the market value of a piece of land and the compensation rate differ, there is a strong incentive to demand reinstitution instead of compensation and to go to the courts. Court decisions including the sequence in the hierarchy of the administrative court system will take years, up to half a decade. Fifth, as of March 1991 it was not possible to clearly delineate the cases where compensation had preference over restitution. As a practical matter, for an existing firm, there tend to be many claimants when the firm has changed over forty years adding pieces of land and additional buildings.

The implications of ownership uncertainty are severe. As of March 1991, the privatization of a firm by Treuhand was frozen if claims by previous owners were announced. Thus, Treuhand could not proceed with privatization. This implied that the privatization of firms was blocked. Another aspect related to the insufficient title records. As of March 1991, there were cases in which Treuhand had concluded a sales contract with a potential investor but the ownership of Treuhand had not yet been recorded in the title records for the 8,000 firms established by law. Consequently, the sales contract is contingent upon Treuhand ownership being established in the title records. This difficulty will now be avoided by a new procedure according to which a

Treuhand document will be binding for the title records. Even with this obstacle gone, it may take 7 - 9 months before the new owner in the above mentioned sales contract is established in the title records. Before ownership certainty is formally recorded, no new owner will invest.

A new law (Gesetz zur Regulierung offener Vermögensfragen - Vermögensgesetz) on establishing ownership has been passed in March 1991. The solution attempted is to speed up the process of reinstituting the previous owner, for instance through a preliminary installation of the previous owner, and to give a clear preference to compensation either when potentially viable firms would be destroyed by reinstitution or when new investments are planned. In order to obtain preferential treatment, the investor needs a certificate of investment made out by the actual user (federal, Länder, the local administration and Treuhand). This may be a problem in the case of competing investment projects. With such a certificate, Treuhand can install the investor preliminarily. However, one has to realize that this law, though it may improve the actual situation, still sticks to the concept that ownership titles are established by administrative decisions. This may not rule out that a previous owner may question an administrative decision of ownership assignment by Treuhand in the administrative court system. The alternative would have been to give up the restitution principle and to sell property rights to new owners. Although the supply side of such a market in property rights has to be organized administratively, sales, as a rule, would not have been checked by the judicial system. The April 23 verdict of the

Constitutional Court has reduced but not eliminated the role of restitution. In ruling out the undoing of the expropriations during 1945 - 1949, the Constitutional Court has signalled that restituting does not have to dominate the solution for expropriatons after 1949; moreover the Court has provided some hints for the compensation procedure including for the amount of compensation. This may be helpful in cases where a piece of land being a part of a firm originally had a private owner. Apparently, the six months since October 3, 1990 have sufficiently shown the negative implications of ownership uncertainty and the Constitutional Court has weighed these negative effects in its verdict. Note that a lower compensation may be an incentive to obtain restitution in the courts.

3.2. Treuhand

Treuhand - a privatization agency - has been charged with privatizing the 8,000 firms (and due to dismantling now 9,500 firms) with 40,000 plants. Treuhand is a holding company owning firms with 4,7 mn employees (in 1990) which amounts to the employment of the 100 largest West German firms. Its role is to

- "restructure - under competitive conditions - and privatize the previous government owned firms" (§25 of the Unification Treaty) and

- to privatize (§2, (1), Treuhand Law) and to "promote the structural adjustment of the economy to the requirements of the market" (§2 (6) Treuhand Law)

The small privatization programm in the service sector is well under way. Larger retail stores and smaller hotels are all privatized, small stores and restaurants are privatized to 70 % and pharmacies to 50 % (March 31, 1991; see Table 3). A completely different picture holds for industrial firms. Here only 12 % of industrial firms of the producing sector have been privatized. Within the Treuhand organisation, the head office is in charge of firms with more than 1,500 employees, the smaller firms being delegated to the regional branches of Treuhand. Up to March, 378 firms have been privatized by the head office, out of which 291 are industrial units (the remaining belong to the service sector) and 599 firms (491 industrial firms) have been privatized by the regional branches. (Up to April, 444 firms were privatized by the head office and 1156 by the regional branches). In the industrial area, the speed of privatization has increased from 90 units in October 1990 to 321 in February 1991 (November 120, December 164; January 230). Within the producing sector, privatization varies with sectors. 40 % of the machine and vehicle industry is privatized, 28 % of food production, 17% of the electronics industry and 12 % of the chemical industry. Suprisingly, in the construction sector which is important for take-off only 7 % of the firms to be privatized are privatized.

Table 3 Privatisation of Enterprises[a)]

	Units to be privatized	Units privatized by Head office	Regional branches	Total	% of Firms privatized
Total number	32,000	378	17,246	17,624	55
Industrial firms of the purchsing sector	6,532	291	599	890	12
Firms in the service sector	24,840	87	16,647	16,734	67
Large retail stores	14	14		14	100
Restaurants and small stores	20,000		15,200	15,200	76
Hotels	390		212	212	50
Pharmacies	1,839		951	951	50

a) March 31, 1991.

Source: Maurer et al. (1991)

For the sale of firms up to April 1991, Treuhand has received 7 bn DM. It should be noted that this figure represents gross revenue; in many areas Treuhand has taken over old debt of firms as well as an obligation to finance the rectification of unknown environmental damages of the past as well as other liabilities, for instance when a firm was not covered against product risks. So far, 333 firms evaluated as non-viable are being closed (head office 112, regional branches 231) with 87,000 employees affected.

The decision of using the Treuhand approach and not a voucher system in the German case may have political reasons, but the conditions for privatization differ from Eastern Europe where the voucher system is seriously discussed. First, there is a large potential to quickly attract new capital to the East German firms because there is no exchange rate risk (relative to Eastern Europe), no risk of changes in the institutional conditions (including no severe risk of sudden changes in taxation) and no political risk. The privatization procedure must tap this potential of private capital transfer. In this context, a voucher system would be too slow. In such an approach, a voucher defining a title to all government owned firms is given out to each member of the population, either free or for payment. The voucher (or units of the voucher) then will be exchanged in a second stage against shares of a specific firm. The relative price between a unit of the voucher and a share is determined by a market equilibrium between the supply of and demand for shares of a firm. Second, new management must be established quickly. This is

necessary because firms need a new strategy and because the old nomenklatura should disappear. The voucher system does not easily solve this issue of corporate control (Frydman and Rapaczynski 1991). Third, the opportunity costs of delay are especially relevant in the German case. A divergence in production levels and employment between East and West would necessitate additional transfers and may lead to an inefficient and extremely costly structural policy. Therefore, the voucher system never was seriously discussed in the German case, and the Treuhand approach seems better suited.

The approach of establishing a privatization agency has the potential advantage of partially separating the policy arena from privatization; however, there are severe risks in such an organizational approach. First, a dense network of cooperation between the Treuhand and various political bodies has been established (Round tables, regional conferences). Second, any organization has a tendency to perpetuate its existence. Therefore, there should be some institutional constraints. One promising approach is to give firms the right to initiate a sale with a potential buyer and then to submit the contract to a bidding process within a prescribed time period. Additionally the potential buyer should have the right to propose a sale and to initiate a bidding process. Third, the Treuhand cannot fulfil the role of making firms viable before they are privatized - a role, however, that is explicitly stated in the preamble of the Treuhand law (Treuhandgesetz). Treuhand does not have information on the economic prospects of 9,500 firms and 40,000 plants. It is therefore mandatory that Treuhand concentrates on privatization.

Fourth, there will be strong political pressure on the Treuhand to ease the burden of structural adjustment of firms by giving credits to firms that actually are not viable and there is some risk that Treuhand will degenerate into a ministry of structural policy. In the board of trustees, the governors of the new Länder (5) and representatives of the trade unions (4) form already a strong bloc voting in favour of a slow pace in structural adjustment. In addition, there are two representatives of the federal government so that the polity has 11 members out of 24. This definitely is a strong influence of the political arena. The Treuhand should not undertake structural policy because it would repeat the mistakes of the planning system that has been given up. Section 6 of § 2 of the Treuhand Law requiring to "promote structural adjustment" should not be interpreted too literally.

With the organizational structure of Treuhand given, the results of privatization will depend on the privatization procedures used. Methods to privatize firms can be ordered on a continuum. Access of firms to the stock market establishes a reliable evaluation of the capital value of a firm by many buyers, including a market judgement on economic viability. In the German case, this would, in principle, represent a possibility for some East German firms, but access to the stock market is subject to many preconditions which are not fulfilled. Moreover, it is a time-consuming process. In addition, only very few firms are viable. On the other extreme of the continuum, there is "informal selling" as a way to privatize, with one party or only a few on the buyers' side. Here the advantage is that informal selling does not require much time, but the buyer's side of the market is

too "thin" giving rise to the possibility of a too low selling price. In between the two extremes of privatization methods there is a formal bidding process. Such a bidding process has the advantage of avoiding a too "thin" market in revealing the willingness to pay of potential buyers; competition among potential buyers may be helpful in stimulating the imagination of potential new owners on what to do with a firm. Bidding also has the merit of providing new management quickly and - in the German case - injecting new capital. Thus, the bidding process which has been used extensively in mergers and acquisitions in the US establishes a market for firms (Smith 1991). The bidding process has the additional advantage of including international buyers and preventing monopolistic positions of German firms. What is much more important, foreign investors might be more interested to use Eastern Germany as a location for their production of internationally tradeable products whereas West German firms may specialize in establishing a distribution system considering Eastern Germany as a market to be served from West German capacity or as their extended workbench.

Bidding will *de facto* be a two-stage process. In the first stage, potential buyers have to be identified, and the specifics of the contract have to be narrowed down. In the second stage, the formal bid, for instance in a closed envelope, occurs. Among the specifics to be determined is the allocation of environmental vintage damages (pollutants in the soil, health hazards of workers and residents), old debt and other liabilities such as product liabilities. In practice Treuhand, i.e. the government, has to take over these risks.

On the average, Treuhand does not use the formal bidding process and explicitly considers the intentions of potential buyers with respect to investment plans and employment guarantees. This procedure may be questioned. First, it is open to what extent these promises can be made binding. Second, these aspects move the privatization procedure to the informal selling approach. Third, they implicitly mean a preference for West German investors. One solution may be that stipulations, for instance an investment, are written into the sales contract, and the final bidding only refers to the sales price.

Establishing a semi-stock market for East German firms with a less formal stock exchange admission regulation (Börsenzulassungs-Verordnung) has not been seriously discussed. This would have meant that firms have an easier access to the capital market, and suppliers of capital possibly take a greater risk. However, this approach is only feasible when firms are viable. In addition, an issue may be that this procedure makes it easier for the old management to stay in power. German banks which in Western Germany , in some instances, helped to restructure firms endangered with bankruptcy did not take over the role of providing East German firms with capital temporarily. Management buy-outs so far have not been too important.

The opinion has been voiced that putting a whole economy up for auction will severely affect the price of firms to be sold and that a macroeconomic financial restraint of all buyers will limit the possibilities of privatization (Sinn 1991). This may be relevant for countries in Eastern Europe and may also relate to

selling land in Eastern Germany on a large scale. However, it is not a relevant problem with the capital value of many of the firms to be sold being negative.

Firms that are not viable must be closed down. The following cases have to be distinguished. First, a firm may have a positive present value (equation 5) with the old capital stock and without adjustment. Second, the firm has a positive present value after adjustment, so that it can recuperate its investment outlays and its adjustment costs. In both cases, Treuhand should have no difficulties in selling the firm or the firms should be able to raise capital in the capital market. Third, for most firms viability is to be defined according to bankruptcy law: Old debt should be foregone, and environmental damages should be taken over by government. If after these measures a firm still has a negative capital value the question is whether it can attract capital for adjustment and restructuring and whether its capital value will become positive, including the investment outlays. This category of firms is viable because net period profits π' defined as

$$\pi' = p\, F(K_o, K_N, L) - wL - (\delta + r)(p_N K_N) \geq o \qquad (5')$$

are positive. Fourth, if the firm can cover its variable cost without adjustment, i.e.

$$\pi'' = p\, F(\cdot) - wL \geq o \qquad (5'')$$

this does not represent a problem because financial support of Treuhand is not needed. Fifth, if conditions 5' and 5'' are not

satisfied, the firm must be closed down. The receipts from privatization should not be wasted on subsidizing non-viable firms.

This fifth category of firms will be the problem cases for Treuhand; and it will be the object of conflicting views: Politicians in Eastern Germany will point out that keeping firms afloat is one way to protect people from unemployment. The counter position is that in an economy of transition there are better ways to protect the people and that it is paramount to uncouple the protection of people from subsidizing non-viable firms. Another argument is that the spatial pattern of industrial location has a hysteresis effect and that closing down important industries in Eastern Germany will reap the region of its development potential. However, this argument neglects the systematic behaviour of structural policy and the argument can thus be turned around: keeping the inefficient firms alive, implies not using a chance to modernize and perpetuating the old structure. This means opening the door to a mezzogiorno scenario.

Treuhand will be constrained by its budget. At this stage (May 1991), a balance sheet for Treuhand does not yet exist. The balance sheet of Treuhand contains the assets and liabilities of Treuhand itself (including its regional units) as well as the cumulative balance sheets of all the firms. The opening balance sheets of all firms may only be in later in 1991. Liabilities of Treuhand include old debts of firms taken over by her, if the debt cannot be passed on to potential buyers as well as liabilities taken over when firms are privatized. Old debt

amounts to 100 bn. DM; Treuhand pays the interest on these debts. These payments actually are amounting to 7 bn DM. Treuhand has granted a credit line to firms of 30 bn. DM in order to allow them to pay wages and to operate in the starting phase of the currency union. It is open to what extent these credits will be repaid. On the other side of the balance sheet, the value of the existing firms is not too large, possibly negative as is indicated by gross receipts of 5.7 bn DM by from selling firms up to March 1991 not counting liabilities taken over by Treuhand and funds needed to keep the firms afloat before the sale. Conceivably, firms will have a negative price, when sold.

With respect to the operating budget for 1991, Treuhand expects revenues from privatization of 14 bn DM with expenditures of 37 bn DM. Debt of Treuhand will thus increase by 23 bn DM in 1991 (Table 4). Treuhand is funded by credits according to a credit line authorized by the federal government.

Table 4 Operating Budget of Treuhand 1991 (bn DM)

Revenues		Expenditures	
Privatization		Costs of Privatizing	5
- Producing service sector	10	Restoration of Firms	12
- Agriculture and Land sector	3	Closing of Firms	3
- Others	1		
		Interest on debt[a)]	12
Credits	23	Other Expediture	3
	37		37

a) Old debt 7 bn DM; Kreditabwicklungsfunds 5 bn DM

4. Investment and Growth versus the J-Curve of Transition: Policies for the Take off

From growth theory and from historical experience we know that a country with a relatively low capital stock per head initially but with technical skills and innovative potential will have high growth rates. Western Germany whose capital stock was partly destroyed by the war and that needed additional capital to equip the inflowing 12 millon refugees experienced a high growth rate of 7.5 % during the period 1950-60. Italy (5.7 %) and Japan (8.1 %) also had high growth rates in the 1950s. High growth rates were accompanied by a high investment ratio. On the other hand, countries with a capital endowment not so much affected by the war had lower growth rates (United States 3.2 %; United Kingdom 2.6 %) and a lower investment ratio (Barro 1987, Siebert 1991b). In contrast to this long-run view, we observe a different short-run development.

4.1. The J-curve of Output

In the adjustment of output and employment, the inefficiencies of the old planning system are clearly revealed. Aggregating over the fall in output (or even the closure) of the typical socialist firm, resulting from the shock in the economic environment, the transition from a planning system to a market economy is associated with a decline in output and employment for the economy as a whole. It can be expected that output will pick up at some time so that we have a J-curve in output with a dip, a

valley or a deep gorge - where output will first fall and then start to rise. The shape of this curve is not exactly known. It depends on the inefficiency of the existing firms, on the speed and methods of privatization, on the speed with which new firms come into existence and on the conditions of the process of restructuring.

The statistical measurement of the J-curve is loaded with difficulties. The transition implies a sizable change in the price vector of the economy, and indices of production use the outdated initial obsolete price weights of the pre-reform period. For instance, for data on East Germany's industrial output (calculated by East German authorities until December 1990)[2] the price weights of 1985 are applied. In addition to twisted price weights, the quantities of the pre-reform period representing the basis of comparison are also distorted as an indirect effect of deformed prices. Moreover, statistics of the old period may be deliberately beautified ("prisky effect") , and gross and net values of production may be falsely specified. Finally, new activities may not yet be adequately reported. Consequently, indices of production may not be meaningfully compared.

So far, we only can observe the falling branch of the J-curve. In the East German case, the index of industrial output fell by about 50 % from July 1989 to December 1990 with the main decline in mid-1990 and a small decline in December 1990 (Figure 2, see also Table A.2 in the Appendix) despite subsidies of an

unprecedented magnitude. Actually, available data seem to suggest that the fall in industrial output may have come to a stop, but decisions on closings have been postponed, and for the time being a final assessment is not yet possible. The picture of the J-curve also can be observed for different sectors of the economy with the decline being especially pronounced for building materials, foods, metallurgy and textiles (Figure 3).

FIGURE 2

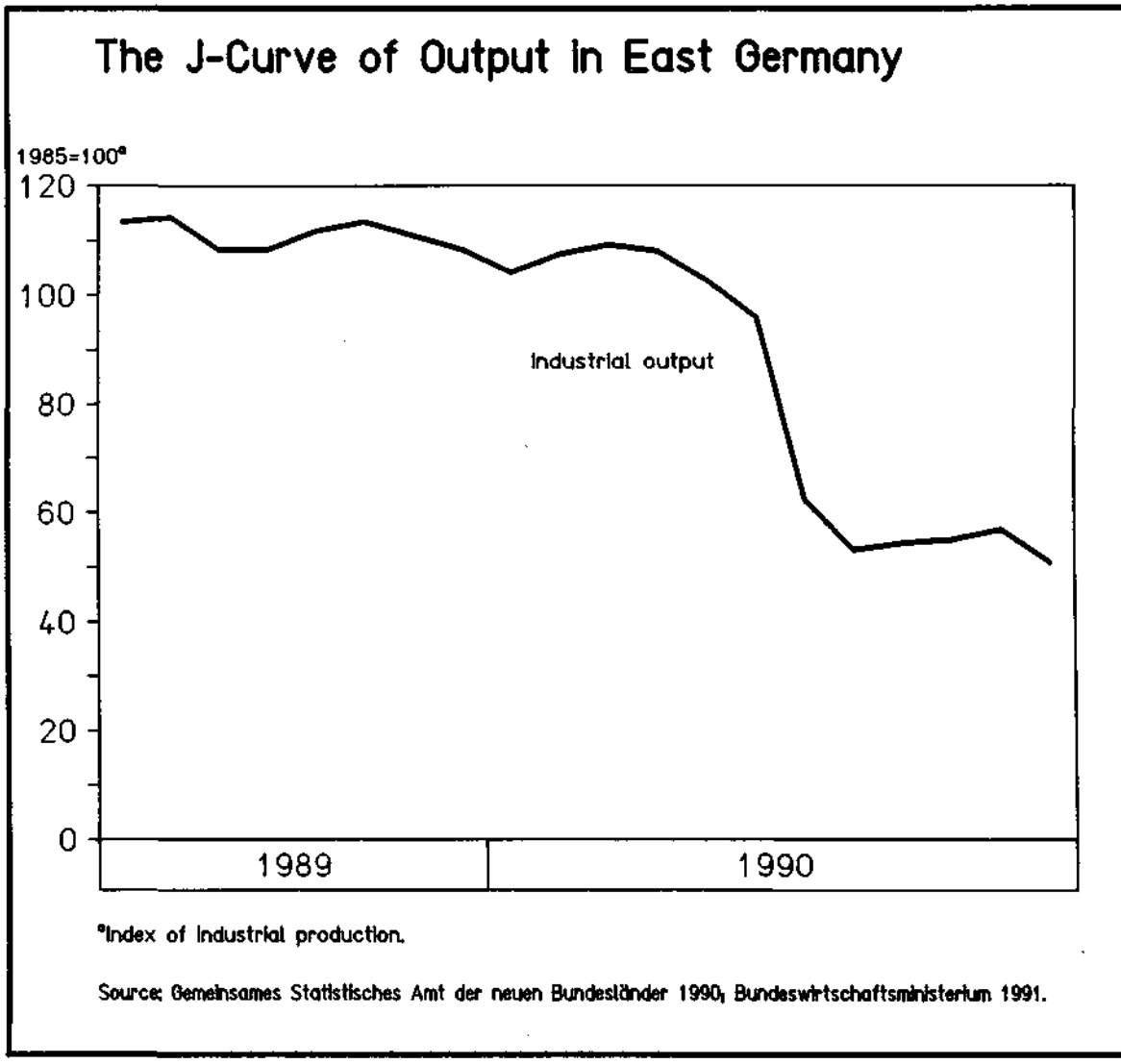
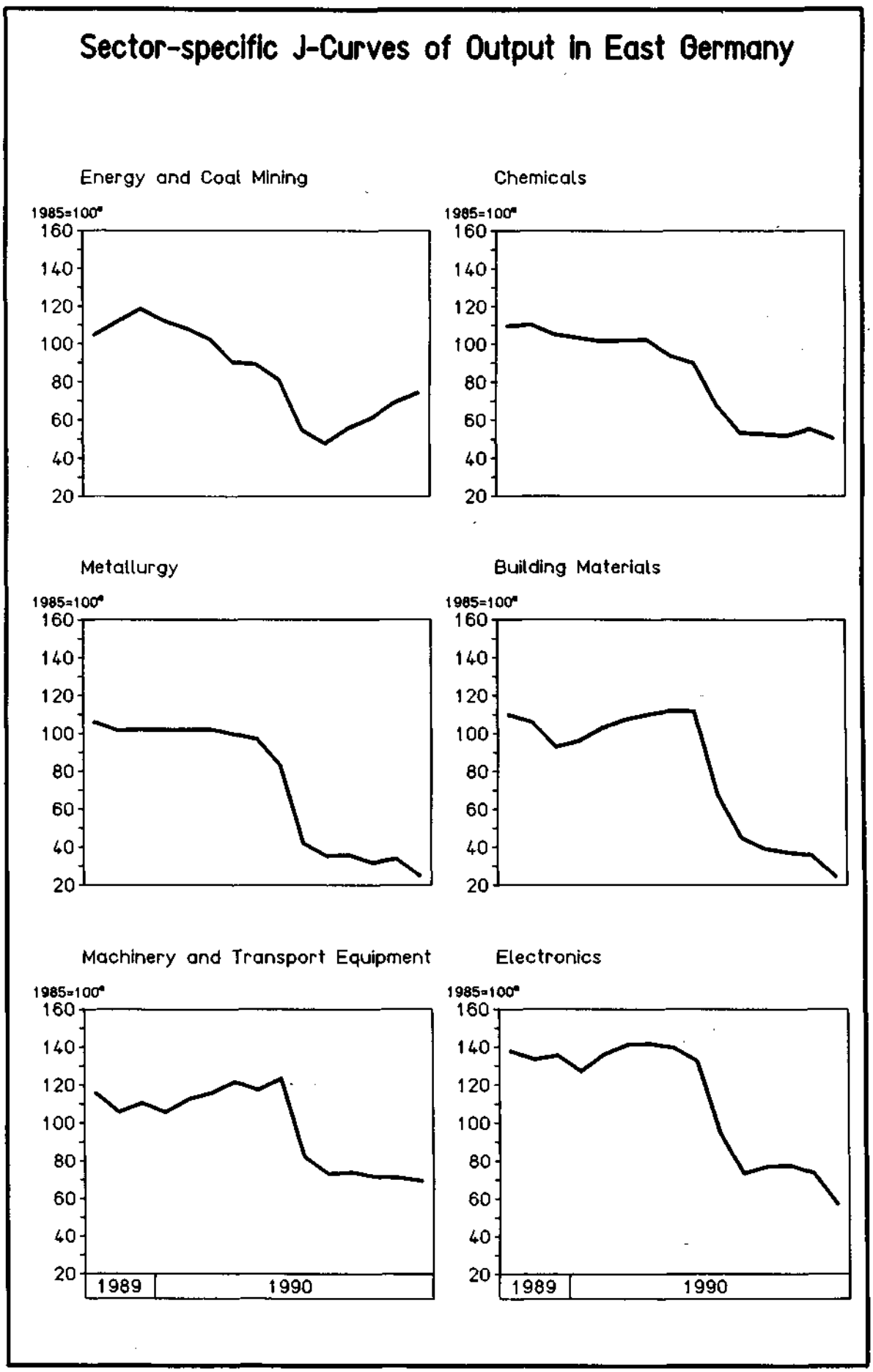
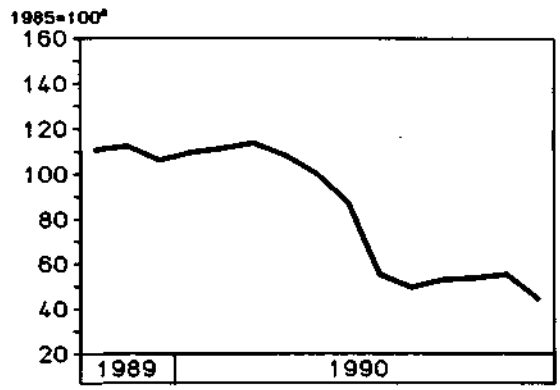

The J-Curve of Output in East Germany
1985=100*
120
100
80
60
40
20
0
Industrial output
1989
1990
*Index of industrial production.
Source: Gemeinsames Statistisches Amt der neuen Bundesländer 1990; Bundeswirtschaftsministerium 1991.

FIGURE 3

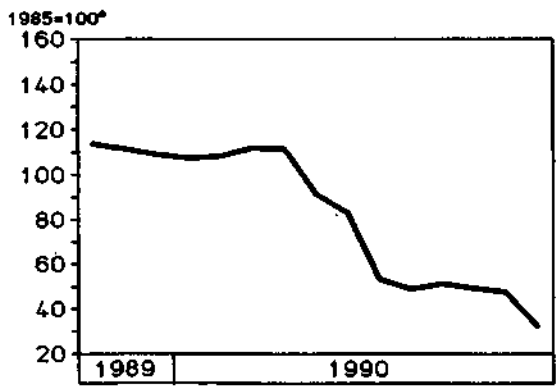

Sector-specific J-Curves of Output in East Germany
Energy and Coal Mining
Chemicals
Metallurgy
Building Materials
Machinery and Transport Equipment
Electronics
1985=100*
160
140
120
100
80
60
40
20
1989
1990

Continuation

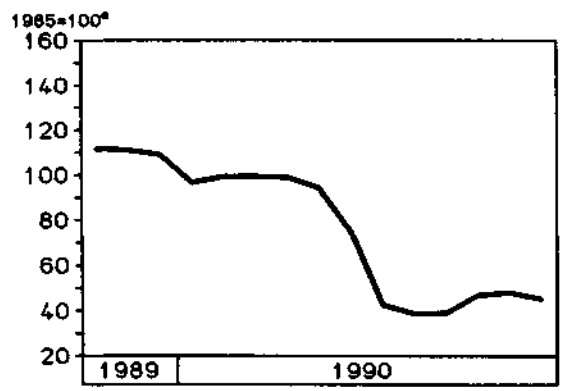
Light Industry



Textiles



Food



*Index of production.

Source: Gemeinsames Statistisches Amt der neuen Bundesländer 1991.

The fall in GNP is not exactly known. It is estimated that real GNP is 15 % lower than in 1989, and GNP will fall once more in 1991 by roughly 15 %. The Federal Statistical Office (Statistisches Bundesamt 1991b) using West German evaluation procedures estimates the GNP of the ex-GDR in the second half of 1990 at 105 bn DM, 8.3 % of the West German GNP (population 26 %; compare Table A3). So far there is no explicit survey of the future closure of firms, with most of the closures still to come.

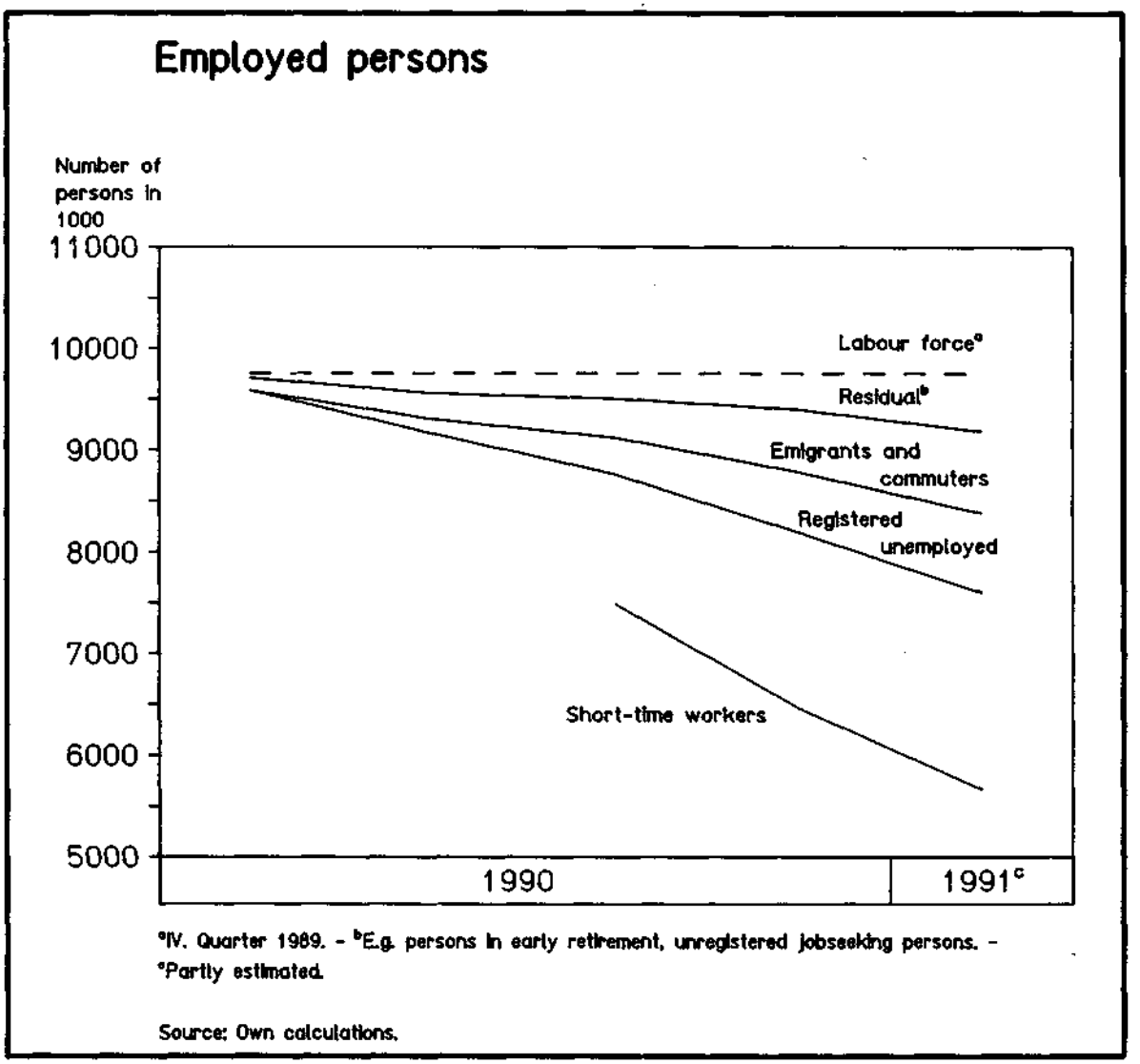
On the positive side, 195,138 new businesses, mostly very small units including one-man firms, have been registered in the period from July 1990 to February 1991 (net registrations). New firms are registered at a rate of 20,000 per month.

So far, we have no data on private capital flows to East Germany. According to publications by Treuhand, short- and medium term investment plans of new owners of firms in Eastern Germany run at 50 bn. DM, with 20 bn. DM private investment (4 bn in 1990), 10 bn. DM railway and postal service, and 20 bn. public infrastructure.

Registered unemployment rose from 140,000 in June 1990 to 361,000 in August, 642,200 in December 1990 and 836,940 in April 1991 (Figure 4). The number of people on short-time work amounted to 656,000 in June and 2,017,600 mn in April 1991 (see table A2 in the appendix). Moreover, net emigration rose from about 10,000 per month in May and June to about 30,000 in July - September 1990. After October 1990, official data on migration are no longer provided. Informal information indicates that the

migration has fallen to a low level (10,000 - 15,000 per month). The number of employees in Eastern Germany has fallen by 1.3 mill. from 9,787,000 (second half of 1989) to 8,476,000 people in the second half of 1990 and 8,193,000 in the fourth quarter of 1990 - a reduction of 1.7 mill. (Table A2). Employees of Eastern Germany include commuters estimated at 250,000 - 300,000. Note that total employment of the pre-reform period reflects the conditions of the old system; therefore with higher wages, voluntary employment after all the adjustment has taken place, that is the long-run equilibrium employment for instance for married women, will be considerably lower than the pre-reform employment. The transition of employment will not follow a full "J" but a "u". (Figure 4).

Figure 4: The u-Curve of Employment in East Germany



[a]IV. Quarter 1989. - [b]E.g. persons in early retirement, unregistered jobseeking persons. - [c]Partly estimated.

Source: Own calculations.

Employment responds with some time lag to output; it takes more time to adjust employment than output. Thus, employment is still falling while GNP and the industrial output are stagnating. For the upswing of the u-curve of employment this time-lag can also be expected. Thus, employment in industry still has to fall for some time, when industrial output is already recovering. In the service sector, however, an increase in output is closely linked to additional employment.

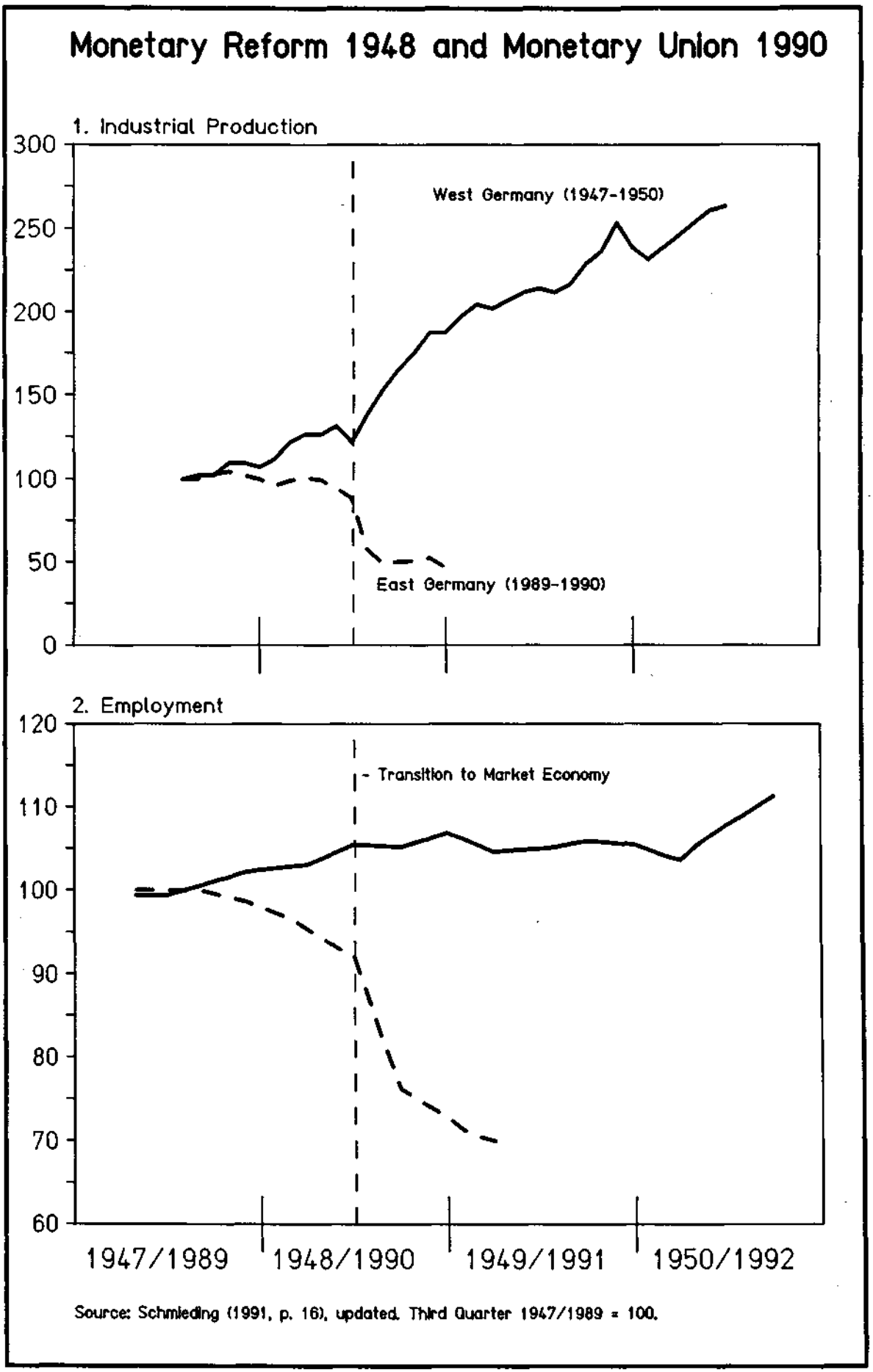
4.2. 1948 - The Wrong Analogy?

Why do we not observe the same spurt of development as in 1948 in Western Germany? As a reminder, 1948 was a comprehensive currency and economic reform. The monetary overhang of a supressed inflation dating back to 1936 was reduced by exchanging 100 Reichsmark into 6.5 new DM for financial assets and using a 1 : 1 ratio for 60 DM per head only. The centrally administrated economy was given up and prices were set free for most commodities (not for basic foods; iron and steel, wages, housing rents and public services). One important difference of 1990 to 1948 is the distortions in the representative socialist firm experiencing an unexpected shock; a second difference is ownership uncertainty. Another argument is that in Western Germany the shock really occured in 1945, and not in 1948 (Schmieding 1991). In 1945, industrial production in Western Germany dropped to a quarter of the level of 1936 (Ritschl 1985). In 1948, production had nearly doubled relative to the 1945 level having reached roughly 50 percent of the 1936 level. Thus some adjustment already had taken place prior to 1948 eliminating the most important bottlenecks. Compared to the J-curve of output in Eastern Germany in 1990/91, output rose steeply after the Erhard reforms in 1948 (Figure 5), and contrary to a u-curve of employment, employment remained stable although unemployment[3] rose due to the inflow of refugees.

Four additional factors play a role in making 1990 different from 1948; the appreciation of the East German Mark, labour market

regulations and the wage setting process, specific bottlenecks and the aspirations of the East German population.

FIGURE 5



Source: Schmieding (1991, p. 16), updated. Third Quarter 1947/1989 = 100.

4.3. Appreciation of the East German Mark

In the adjustment of the firms in Eastern Germany the transition problem to a market economy overlaps with the appreciation of the East German Mark. If we only are concerned with the competitiveness of firms of a socialist country in transition, a depreciation of the currency is an appropriate step to ease the burden of transition. However, depreciation of the currency cannot compensate lacking product quality, inefficient marketing, an inadequate distribution network and the other shortcomings of the socialist firm. In the German case, there was the political problem that a very quick political union was required which did not allow a two-currency area with a flexible exchange rate serving as a shock absorber for the East German industry. Thus political rationality dominated purely economic considerations.

The extent of appreciation of the East German Mark is difficult to determine. Neglecting product, firm or sector specific exchange rates, the foreign currency coefficient[4] of 1989 indicates costs of 4.4 GDR-Marks to earn one unit of the (West) Deutsche Mark. Relative to this admittedly distorted exchange rate, the East German Mark was appreciated by a factor of 4.4 whereas in 1949 the DM was depreciated by 21 %. In addition, the artificial fixed exchange rate system of the COMECON, the transfer rouble, is not used any more with Eastern European currencies aiming at convertibility. As a consequence, intra COMECON-trade is breaking down. Moreover, demand from the USSR, so important for East German firms, is falling considerably due to internal problems in the USSR.

4.4. Differentiating the Wage Structure

Labour market regulations and wage setting raise specific issues of transition. The application of West German labour market regulations (lay-off constraints) affects the process of transition including investment. Thus, article 613a of the West German Civil Code (Bürgerliches Gesetzbuch) requires that existing labour contracts also hold for the new owner of a firm. This rule is intended to protect the employee against a lay-off in a normal ownership change, and it already establishes incentives not to buy a firm under a normal situation. However, this rule creates severe incentive problems for the transition of a socialist economy, especially in privatizing firms. Other institutional features of the German labour market are the bargaining autonomy of trade unions and employers' associations (Tarifhoheit), the mandatory application of bargained wages to non-union labour (Allgemeinverbindlichkeit), severance pay for closing a firm and the social security system. West German unemployment compensation was extended to Eastern Germany with the compensation being linked to the East German wage level.

With the exchange rate no longer available to improve the competitiveness of East German firms, the wage rate should take over the function of giving Eastern Germany a temporary advantage. However, one has to recognize some mechanisms that reduce the wage differential between East and West Germany. Since highly skilled workers are rather mobile, their wages cannot differ too much between Eastern and Western Germany. Commuters along the previous border will raise wages in the western parts

of the former GDR; this also holds for Berlin. Firms in the service sector in Eastern Germany, such a banks and insurance companies, seem to pay the same wage to employees regardless of whether they come from Eastern Germany or Western Germany. Converting wages with a rate of 1:1 did not improve the competitiveness of East German firms. More specifically, the conversion rate formed expectations of the East German population.

Trade unions have pushed for high wage increases. Bargaining of trade unions was undertaken in a situation when firms were not yet privatized and the previous managers were still in place. Thus, the trade unions did not have a strong counterpart. Moreover, for the managers and workers wage bargaining represents an end game (Akerloff 1991 et al), with many of them losing their job. In addition, it could reasonably be expected that the government or the social security system would protect against unemployment with compensation being linked to the wage rate agreed upon. Last but not least, there was no attempt of government policy to control the wage increases (compare Poland's tax policy).

In the third quarter of 1990, the average wage per employee in Eastern German industry has increased by 14% amounting to an annual rate of nearly 70 %; at the end of 1990, Eastern Germany has reached roughly 50 % of the West German wage level[5)] whereas productivity, estimated by some to be 1/3 of the West German level of productivity prior to the currency union (Siebert 1990a), is now calculated as 28.5 % of West Germany's for the

second half of 1990 (Statistisches Bundesamt 1991b). It is estimated that at the end of 1991, the East German wage level will be at 60 % of the Western German level.

A favourable labour endowment at low wages provides only a temporary comparative advantage for Eastern Germany. However, it should be recognized that the ex-GDR has a qualified stock of labour, which implies a comparative advantage in skilled-labour products. Moreover, we can expect that the addition of labour to the West German economcy will eventually imply a somewhat lower wage increase in the united Germany.

There seem to be three conflicting demands on the role of the wage rate in East Germany. First, the wage rate should take over the role of the exchange rate because the competitiveness of firms is heavily influenced by the wage rate. Second, the wage rate should be in line with the increase in labour productivity. Third, the wage rate should be high enough to keep people from emigrating. This may be too much of a task for one price variable.

The answer to this puzzle of conflicting demands on the wage rate is that the productivity rule should dominate. Then, competitiveness is assured and the role of wages analogous to the exchange rate is fulfilled. Wages increase with the rise in productivity. Moreover, highly qualified labour will be able to earn high wages in East Germany. Emigration and commuting is not bad in itself, because it can be considered to be a training-on-the job which is probably more efficient than any

governmental qualification program. Moreover, in the spring of 1991 emigration is not an issue and unemployment may be a more important determinant of migration than the wage rate. The productivity rule implies a differentiation in the wage structure and decentralized labour contracts. Wages for a highly qualified expert in East and West Germany cannot be too different and wages for any kind of qualification cannot be too divergent in East and West Berlin or along the previous border. But wages for work in Görlitz near the Polish border and East Berlin might very well be different. Thus, one important answer to the unemployment problem is wage differentation. Wage setting should follow the productivity rule.

4.5. Causal Therapy versus Neutralisation Policy

Besides ownership uncertainty, there are specific bottlenecks which hinder a quick development. One such bottleneck is the non-existence of an efficient administration especially in the heavily regulated German economy. Insufficent records of land titles are one example. In the German case, the regulations of a well developed market economy are applied to an economy in transition, for instance the licencing procedure for firms (licence to open a business, environmental licences etc.), land use planning, zoning and the procedures of land use for infrastructure. The decision process on large scale infrastructure projects such as new railroad lines or major roads takes 15 - 20 years.

Infrastructure, an important prerequisite for private activity, is deficient in Eastern Germany. This holds for communication, transportation such as railways and roads as well as environmental quality. In Germany, infrastructure in these areas has traditionally been a domain of government which implies that the provision of new infrastructure is subject to the relatively slow decision process of government, to the specific constraints of governments for instance in hiring personnel and due to the budgetary process as well as to budget constraints. Unfortunately, the political process is not imaginative enough to introduce the private provision of infrastructure and private funding.

Lacking premises being relevant for the creation of new firms is another bottleneck. Access to premises is linked to the uncertainty of ownership, to the not yet efficient administration and to the deficiency in infrastructure, for instance with respect to industrial parks, energy supply for specific locations or the capacity of the water purification system and sewage pipes. Moreover, old firms block location space for new firms.

We have competing hypotheses for explaining the falling branch of the J-curve of output. Here is a review of the candidates for explanations:

i) The existing firms are inefficient.

ii) Ownership uncertainty blocks investment in the restructuring of old as well as in the creation of new firms.

iii) The inefficiency of the administration and the lacking infrastructure represent a further bottleneck.

iv) The appreciation of the East German Mark has reduced the competitiveness of East German firms.

v) Wages have increased at a higher rate than productivity contributing to unemployment.

vi) The supply side response of restructuring existing and creating new firms requires time.

All these factors are relevant in explaining the adjustment problem. We would need an econometric analysis enabling us to discriminate between the different causes. In my evaluation, the inefficiency of the typical firm is the basic initial condition of the problem; this, however, is given. Similarily as the currency union is given and cannot be changed. Also, the adjustment time needed for a supply side response is a fact. The major cause of the adjustment problem that can be changed by policy is ownership uncertainty. For second rank, the inefficiency of the administration and the lacking infrastructure compete with the wage policy.

A policy of transition in the sense of a causal therapy is the most promising approach. Therefore, the first line of attack must

be eliminating ownership uncertainty, improving the administrative facilities, exempting Eastern Germany from some of the West German regulations and improving the infrastructure. The political process may be pressed, however, to do more and neutralize some of the causes. This involves the risk of perpetuating the inefficiences and creating new distortions. This is the area of second best. Unfortunately, the theory of the second best very often does not incorporate the political economy of instruments chosen and therefore is not too relevant for practical problems. Some of the policy approaches are shortly reviewed.

Subsidies to existing firms. Subsidizing non-viable firms in order to protect the workers during the transition period definitely is the wrong approach. Subsidies would protect the inefficient firm, and this would severely retard adjustment. Economic decisions such as the closing of firms would be politicized and subsidies would be perpetuated in the political process. Rent seeking would be an attractive activity for management. Moreover, the exit conditions for the old firms influence the entry conditions for new firms: subsidized firms define the wage level of a region and block the location space for new firms. Finally, financial resources used for the old firms compete with the stimulation of new firms due to the budget contraint of government.

Wage subsidies. Subsidizing labour (Akerloff et al 1991) would reduce the wage costs of firms. It would not make sense to grant wage subsidies only to non-viable firms, consequently a general

wage subsidy for all firms, old and new would be required. The financial burden of such a general wage subsidy is large: Consider a subsidy of 300 DM per month (20 % of the average monthly wage) and take into account 8.5 mn employees, this would require 30 bn DM. Admittedly, there would be less expenditures on unemployment. Another argument against wage subsidies is that they do not grant a premium on change and a new orientation for the future, but keep up the status quo. The most severe problem, however, is the moral hazard behaviour of trade unions. In a situation of high aspiration levels of the East German population, with the employer's side not effectively represented in the bargaining process and with the German unemployment system it is difficult to see how wage subsidies would not quickly find their way into higher wages. Wage subsidies clearly would be a serious mistake. A rather practical problem is that the investment subsidies already in place must be considered as given (changing them now would not be wise). Consequently, wage subsidies would be added to investment subsidies[6].

Protecting the workers. Clearly, workers laid off during the transition must be protected. In principle, this could have been accomplished by applying the unemployment insurance to Eastern Germany and adjusting it to the new situation. Instead, a short-term work arrangement paying 68 % of the previous wage (plus an additional 22 % by the firm thus amounting to 90 % of the previous wage) was introduced as a mechanism to protect the workers. The short-term work arrangement has been extended to the end of 1991; the additional payment by firms - a result of wage

bargaining - is under discussion after the first half of 1991. It is better to protect the worker than inefficient firms.

Qualification schemes. Short-term work arrangements have the advantage of protecting the worker (and reducing the wage costs for firms considerably), but they have a rather static orientation. The incentive for qualification was weak. Therefore qualification schemes may be a promising avenue. West German experience with so called "employment firms" run by municipalities and non profit organizations do not seem to be too encouraging. However, it might be more promising to initiate a decentralized supply of qualification opportunities by private industry. This could be achieved by giving any unemployed person a qualification voucher containing the unemployment insurance plus a coupon which can be handed in to any firm that is registered as a qualification firm (for details Siebert 1991a).

Investment subsidies. Subsidizing investment favours capital and this distorts resource allocation. In increasing capital intensity, it is an incentive to substitute labour by capital, and this reduces the demand for labour. In the sense of a causal therapy, investment subsidies cannot overcome ownership uncertainty and hardly an inefficient administration. Nevertheless, investment subsidies are oriented towards change and may start the accumulation scenario. It seems that a combination of investment subsidies and qualification schemes is the most promising approach. Both approaches do not protect the

economic structures of the past, but they put a premium on something new.

German economic policy has opted for a combination of protecting the worker and a complex system of investment stimulation. Firms can collect an investment tax-credit (bonus) for investment in machinery and equipment of 12 % (up to December 1991), 8 % (up to December 1992) and subsidies of up to 23 % of investment outlays according to the federal-states programm "Improving the regional economic structure", however by application. In addition to the tax credit, special depreciation allowances of up to 50 % in the first five years can be applied. For investment in machinery and equipment, all these subsidies can be used in addition to a linear depreciation of investment expenditure in the first year. In many cases, this is equivalent to a 100 % depreciation. There are special programmes for new and small firms. These measures have been critized by the Council of Economic Advisors as being too confusing. A general investment tax credit would have been preferable. It seems to be quite clear that in the sense of a causal therapy a lack of investment incentives is not the decisive factor for the slow development in Eastern Germany.

4.6. The Market versus Structural Policy

The decisive policy choice is to what extent real adjustment in Eastern Germany will come about through market forces or by the political process. There is a strong political demand for the

structural protection of the East German industry, for a slowed adjustment process and other types of intervention protecting the existing firms. This would imply subsidizing the inefficient firms, postponing the closure of non-viable firms and keeping them under the umbrella of government. As a consequence, there is a definite risk that the political process will dominate the privatization of firms and that privatization will not be decided upon economic criteria but in the political process. Treuhand will be pushed to make firms viable first and then to privatize them. Finally, there is a tendency that the increase in wages is not steered by market forces, especially by the increase in productivity, but by political bargaining.

Two reasons can be cited for these risks. First, the aspirations of the inhabitants of Eastern Germany are high, resulting in a political demand for quick improvements in income, environmental quality, housing, social security and physical infrastructure. The demonstration effect of the rich brother in Western Germany forms the expectations and the aspiration levels of the population in Eastern Germany. In this respect, the situation differs from 1948 in Western Germany. Second, there is now a spreading belief that the restructuring of Eastern Germany cannot be left to the market forces, and that politicians have to intervene. Market processes on the supply side like stimulating new supply, creating new products, investing into new production lines need time, but people do not have patience. Moreover, in a situation with impatience of the electorate, the politician is tempted to intervene, thus arousing public support and aiming at the acknowledgement of his legitimacy. This discretionary

behaviour having been labelled the firefighter approach is characterized by a short-run perspective, attempting a quick fix to solutions without taking into account long term opportunity costs.

If the political demands for an institutional approach to the restructuring of the East German economy are allowed to influence the course of events and if they dominate the market process, economic decisions will be politicized. Then, some of the characteristics of the previous inefficient system will continue. The firms will face a soft budget constraint as before and the necessary adjustment will not come about. The government will take over the role of evaluating the potential development of sectors and firms which it clearly cannot do. The existing inefficiency of the East German economy will be perpetuated, and structural change in the ex-GDR will take place along similar lines to West Germany's experience with the sectoral policy for ailing industries. The forecast then is that financial resources will be wasted, that the burden for the taxpayer will be high and that the positive supply side effect will be severely inhibited. In a special report, the German Council of Economic Advisors (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung 1991) has warned against such an approach to the problems in Eastern Germany.

5. Long-Run Benefits versus the Costs of Unification: Budget Policy and the External Account

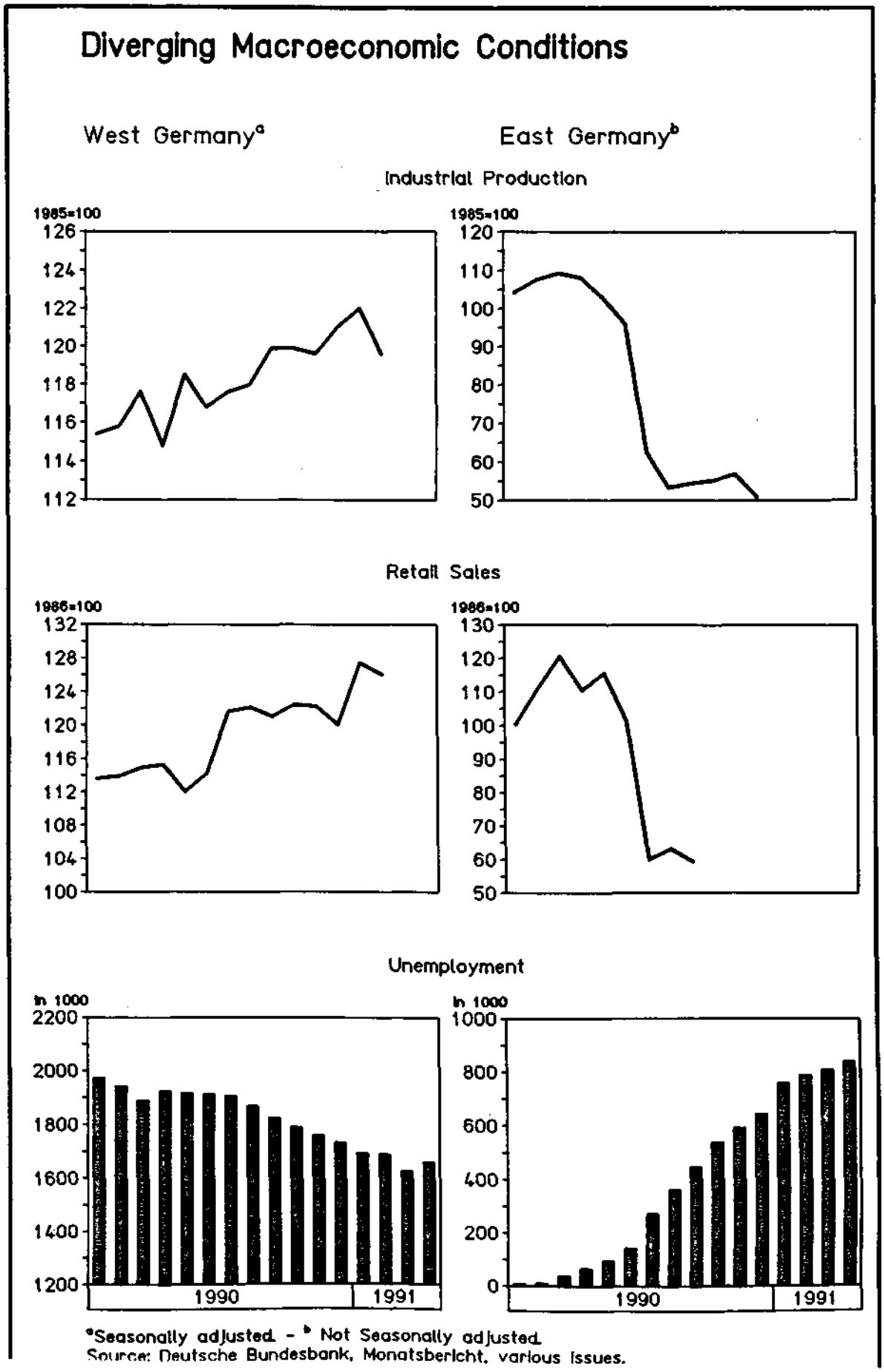
In the medium and in the long run, the integration effect, the impact of the new economic system and the capital accumulation effect will play, and there will be the long-run benefits from unification for Germany. In the transition period, costs are incurred, and as in any large-scale investment project, there is a cash-sink hole before the gains come in. Besides this intertemporal asymmetry in expenditures and receipts, there is the issue to what extent transfers are needed to smooth the process of transition and to alleviate the social problems in Eastern Germany.

5.1. Diverging Macroeconomic Conditions

In the transition period, there are diverging macroeconomic conditions between Eastern and Western Germany. In West Germany, real GNP has increased by 4.6 % in 1990, whereas GNP in Eastern Germany has fallen by about 15 %. Aggregate demand for West German products has increased, creating excess demand and inflationary pressure in the West. It is estimated that East German demand has contributed one percentage point to the real growth rate in Western Germany in 1990 (and may contribute an additional half percentage point in 1991). In the last years of high capacity utilization with almost 100 %, production capacity proved to be elastic, possibly due to the immigration from the ex-GDR and Eastern Europe. Due to a lack of demand for East

German goods, we have a structural crisis in the East reflecting the transition from a socialist system to a market economy. An indication of the split macroeconomic situation can be seen in the three variables industrial production, retail sales and the unemployment data in West and East Germany (Figure 6).

FIGURE 6



[a]Seasonally adjusted. - [b] Not Seasonally adjusted.
Source: Deutsche Bundesbank, Monatsbericht, various issues.

5.2. Transfers

In Eastern Germany there is a difference between production and absorption. In the second half of 1990, absorption of 143,190 bn DM was higher by 37,890 bn DM than production (105,3 bn DM). For 1991, a difference between absorption and production of 110 bn DM can be expected (Arbeitsgemeinschaft 1991). This difference, socially easing the process of transition, can only be explained by explict or implicit transfers to Eastern Germany. Governmental transfers (federal government, states) amounted to 45 bn. DM in 1990; in addition, the conversion of the East German Mark has given purchasing power to East Germans[7]. Income of commuters earned in Western Germany is another factor. In Western Germany the growth rate of GDP is greater than that of GNP, due to commuters from Eastern Germany. For 1991, government transfers are estimated to reach 115 bn. DM (see Table 6).

Government transfers from Western Germany are needed for financing most of the expenditures of the new Bundesländer and the local governments in the East. Government revenue in the East will be low mainly relying on the value-added tax and on excise taxes. Expenditures will be necessary not only for the government's administrative role but also for building up infrastruture and improving the environmental situation. In addition there is the risk that massive subsidies will be paid in order to alleviate structural problems from a lack of competitiveness of industry and agriculture.

It is extremely difficult to estimate the amount of future government expenditures and transfers. For social overhead capital, the back-of-the-envelope calculation of the GDR capital stock in infrastructure amounts to roughly DM 530 bn. This figure can be derived by adjusting the West German capital stock in infrastructure of 2,044 bn. DM according to the proportion of the population in Eastern Germany of 25 % (Siebert 1990c, Table 5).[8] Assuming that part of the infrastructure (buildings, roads) is physically intact, maybe 300 bn. DM will have to be spent on physical infrastructure over a ten-year period. It is even more difficult to estimate the costs of correcting the environmental damages of the past. These costs are not included in this calculation. Note that costs for abatement of new facilities must be borne by the individual firms and therefore do not represent a cause of public transfer.

Part of the transfers to Eastern Germany stem from the "German Unity Fund" (22 bn. DM in 1990, 35 bn. DM in 1991). The fund was built in May 1990. The federal government finances about 10 % of the means of the fund directly; the rest of the burden is shared by the states (Länder) including the local governments and the federal government (50 % each). The fund's means were intended to finance public expenditures at all levels of government in Eastern Germany. In February it was decided that the means are used to finance expenditures of the local governments and the states only; this means an additional 5 bn. transfer to the new Länder and the municipalities in Eastern Germany. Also,

in February 1991, a new programme "Reconstruction of Eastern Germany", was started. It includes 12 bn. DM mainly for building up the infrastructure of the new states; substantial labour market policy measures are intended, too.

Contrary to the 1990 intentions, the new Länder will receive their share in the value added tax revenues according to the size of the population already in 1991 instead of 1994. This means a transfer of 6 bn. DM from Western Germany to Eastern Germany. Nevertheless, the new states do not yet fully participate in the traditional West German transfer mechanism that shifts tax revenues from rich states to the poor ones. According to the 1990 plans, the new states would only have been included in this transfer process in 1995. However, this will probably happen earlier because of strong pressure from the new states.

Explicit transfers to the new Länder and municipalities do not represent the only item explaining transfers to Eastern Germany. The social security system in the transitional period has to be financed, and this represents a transfer to East Germans. It is estimated that 7 bn. DM were necessary for the initial financing of the social security system (mainly old age pensions, benefits in case of unemployment or short-time work) in 1990. Another item are the financial needs of the Treuhand. In this context, the financial status of Treuhand is not yet known (see above).

Moreover, the previous GDR banking system and its successors have so-called "equalization claims" (Ausgleichsforderungen) against a special fund (Ausgleichsfonds-Währungsumstellung) on their asset

side. These claims arose when the assets and liabilities (savings of the population) of the GDR banking system were converted at different rates. Equalization claims amount to 24 bn DM according to preliminary calculations. In 1991, interest of about 2 bn. DM is paid by a special fund of the federal government.

Table 5 - The Public Sector Budget of East Germany (a) (bn. DM)

	1990	1991
Revenues	128	212
Taxes	37	31
Contributions to social security	43	59
Other current transfers	3	7
Capital transfers from West Germany	45	115
Expenditures	157	262
Interest on public debt	9	16
Government consumption	69	74
Transfers to		
Households	39	95
Firms (subsidies)	34	55
Net investment	4	15
Capital transfers	2	7
Balance	-29	-50
Balance excluding capital transfer from West Germany	-74	-165

(a) Public sector in the definition of National Income and Product Accounts (including the social security system and the Treuhandanstalt

Source: Own calculations based on DIW [1991a]

A special fund of the federal government also has taken over foreign debt of the ex-GDR amounting to 16 - 17 bn. DM. This represents a yearly burden of roughly DM 1.5 bn. In addition, the federal government will incur other expenditures for Eastern Germany, for instance for building up the infrastructure without explicitly transferring the funds to the new Länder. These expenditures of the federal government are included in the figures of Table 5. For the financing of the long-run sales contracts to the USSR, more than DM 2 bn. were paid in 1990, a similar burden can be expected for 1991.

The East German budget for 1990 (ex-GDR until October 3, since October 3 new Länder, local governments, fictitious part of the central government, social security, Treuhandanstalt) included expenditures of DM 157 bn. and government revenues of DM 128 bn. Among the

revenues, transfers from Western Germany amounted to DM 45 bn in 1990. The Eastern German budget deficit was DM 29 bn in 1990. For 1991, expenditures are estimated at 262 bn DM and revenues at 212 bn DM, transfers will be 115 bn DM; the Eastern German budget deficit is 50 bn DM. (Table 5).

Table 6 - Government Transfers from West to East Germany, 1990 and 1991 (bn. DM)

	1990	1991
Transfers to the social security system	7	42
Old age pension scheme	2	5
Unemployment insurance	2	37
Health insurance	3	1
Transfers to the governments	38	73
Total transfers	45	115

Source: Boss (1990); corrected according to new information.

Table 7 : Government Budget (a) - bn. DM

	1990	1991
Revenues	1,132	1,259
Taxes	612	676
Contributions to social security	453	504
Other items	67	79
Expenditures	1,212	1,404
Interest on public debt	74	88
Government consumption	517	549
Transfers to		
Households	421	500
Firms (subsidies)	86	99
Net investment	44	58
Other items	70	110
Balance	- 80	- 145

(a) Public sector in the definition of the National Income and Product Accounts (including the social security system and the Treuhandanstalt)

Source: Boss (1990); corrected according to new information.

5.3. The Overall Budget Deficit

The overall German government budget deficit amounted to 80 bn. DM in 1990, which is 3 % of GNP (Table 8). In May 1991, a budget deficit of 140 bn. - 150 bn. DM (5.1 % of GNP) is expected for 1991. A comparable budget deficit existed in 1975 (5.6 %; 1981: 3.7 %). From 1981, this ratio was brought down to 2.1 % in 1988. In 1989 there was even a small budget surplus (0.2 %).

Table 8 : Budget Surplus/Deficit in Percent of GNP, 1988 - 1990

	1988	1989	1990
Austria	- 3.1	- 2.7	- 1.5
Belgium	- 6.4	- 6.2	- 6.0
France	- 1.8	- 1.5	- 1.5
Germany			
- West Germany	- 2.1	+ 0.2	- 2.0
- Federal Republic of Germany	-	-	- 3.0
Italy	-10.9	-10.2	-10.0
Netherlands	- 5.1	- 3.9	- 4.0
Japan	+ 2.1	+ 2.7	+ 3.0
Spain	- 3.2	- 2.8	- 3.0
United Kingdom	+ 1.1	+ 0.9	+ 0.5
United States	- 2.0	- 1.7	- 2.5

Source: Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (1990), own calculations for the Federal Republic of Germany.

In principle, public investment can be financed by bonds and a temporary budget deficit may not be a matter of concern. This holds if investment pays for itself. In the German case, however, it is estimated that out of the transfer of 115 bn DM (1991) only 15 % represent infrastructure investment per se; even if establishing an efficient administration could be considered as an investment, the overwhelming part of transfer is for consumption. Thus, in an investment sense, a large part of the transfer will not generate future tax revenues.

Another aspect of a deficit is that the source of financing government expenditures including consumption expenditures, i.e. by taxes or bonds, may be irrelevant, if individuals fully anticipate future tax obligations implied by government debt and increase their savings accordingly.[9)] Under the assumptions of Ricardian equivalence (Barro 1979) like non-distortionary taxes, operational bequest motives and no credit rationing for individuals intertemporal distortions could be minimized by setting taxes and debt finance in such a mix that the expected future tax rates are constant. A temporary expenditure could then be financed by a small increase in taxes. It is open whether Ricardian equivalence holds empirically (Nicoletti 1988) but it is still another question to what extent a government is well advised to base its fiscal policy on the Ricardian Equivalence Theorem.

A third aspect of allowing deficits is that the political process will not control expenditures sufficiently (especially before elections) and that the dynamics of the political process will go on a spending spree. Neutrality of financing is destroyed by the

political economy of government expenditure, and historical experience of democracies including institutional and even constitutional rules in the expenditure behaviour of governments suggests that this aspect cannot be neglected. (Buchanan and Tullock 1962). Under this aspect, the size of the deficit matters; bond financing of a budget deficit of 5 % is not advisable.

An additional argument is that a deficit of this size would reduce the political manoeuvering space of future governments considerably due to heavy interest payments. Governments may be forced to increase taxes in order to repay debt thus choking off private investment. Or consider a scenario in which a country has to devalue its currency for reasons it cannot control. Such a devaluation may put pressure on monetary policy. If a high external debt is around, this may aggrevate the problem. Thus, a large budget deficit reflects a risk factor if unforeseen developments occur. The policy conclusion is that the deficit has to be brought down.

Part of the financial burden on the German budget should have been financed by a reshuffling and reduction of expenditures including the cutting of subsidies. Expenditures in the overall budget amount to 1,212 bn. DM (1990), and it should have been possible to reduce (and stretch) at least some of the expenditures. Subsidies are estimated for West Germany alone at 130 bn. DM per year (explicit payments 80 bn. DM)[10], and it should have been possible to cut 20 % or 26 bn. DM. Especially, the former border areas of West Germany and Berlin were subsidized with 13 bn. annually, and these subsidies now represent severe distortions relative to the new Länder. However, the political

process does not have enough vigour to reduce expenditures only succeeding in cutting 2 bn. DM 1991, as the program of the new coalition government indicates. Only in 1994, the subsidies are to be reduced by 10 bn. DM, mainly because of the abolition of the subsidies for Berlin and the former border areas. Additional efforts to cut subsidies were announced by the Minister of Economic Affairs in early March 1991.

Financing government expenditures by partly privatizing infrastructure in Eastern Germany was never seriously taken up. This option would have had the additional advantage of providing infrastructure much more quickly than through the budgetary process. The communication industry could have been privatized, financing itself through user charges. Financing through user charges could also have been applied to airports, other areas of transportation, and industrial parks and local environmental projects like water purification plants. In these cases, the government would only have to set the frame of reference under which private projects can be undertaken.

Another source of financing would have been the sale of governmental assets in West Germany where some firms are still owned by the federal government, but a large number by the states and the municipalities, especially in the savings and loans sector. The revenue potential from privatization in Western Germany is substantial. In 1989 the financial assets held by the government amounted to 370 bn. DM (Schlesinger 1990).

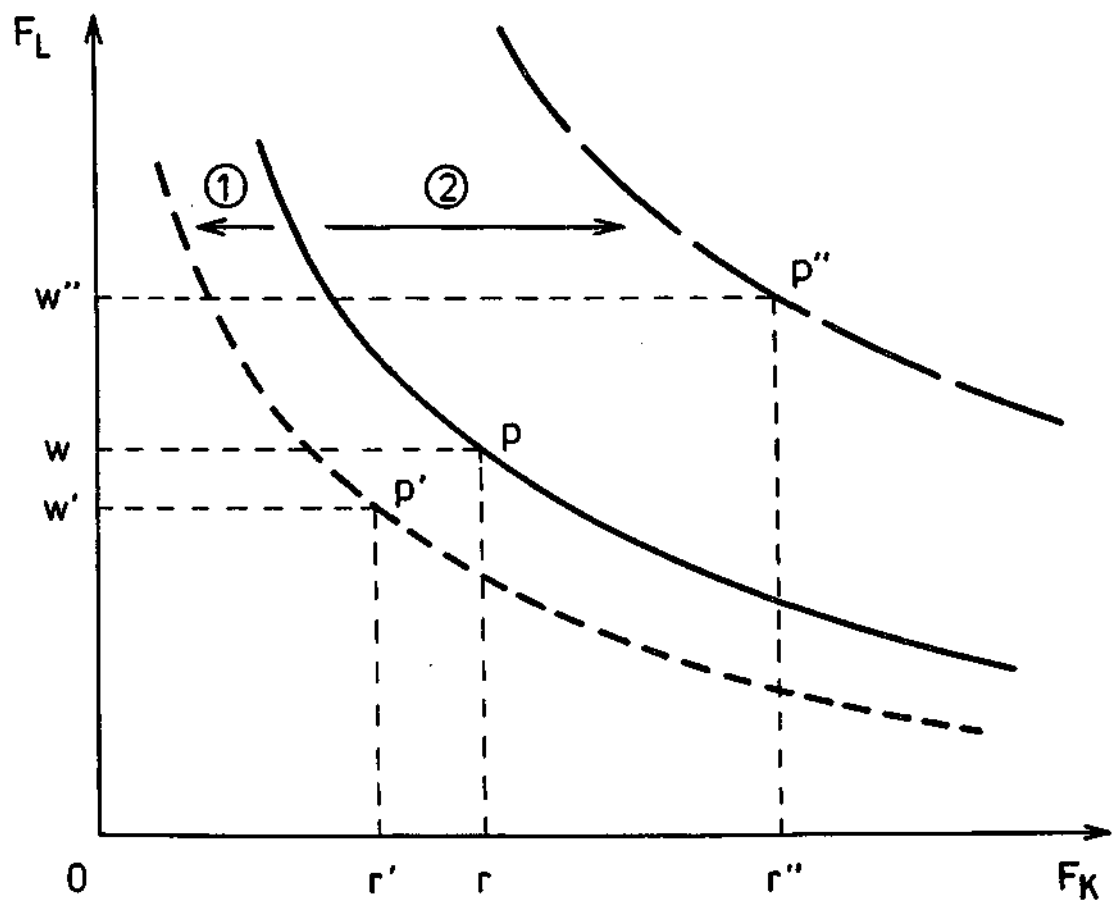
An important issue for the future is the division of labour among the federal government, the states and the towns and counties with respect to public expenditure and revenue. In the long run, a new system of intergovernmental transfers (Finanzausgleich) will have to be developed for Germany with new rules for allocating government income and expenditure to the three layers of government, the central government, the states (Länder) and the municipalities. In the actual system, the states only have a minor authority in determining their revenue. More autonomy on the revenue side, and consequently on the expenditure side, could be introduced by letting states explicitly decide on tax rates, for instance with a state-specific income tax rule. This would introduce a process of institutional competition among states both on the expenditure as well as the revenue side. A precondition for such an approach would be a redefinition of states so that they are viable.

5.4. Interest Rate Effect

From the long-run effect of integration, from new investment opportunities and from the incentives of the market system, German union can be interpreted as a "new frontier" in the sense of Alvin Hansen (1955) or as a positive supply shock. Clearly, the potential marginal efficiency of capital in Eastern Germany has increased, and the real interest rate will be driven up from the supply side. Due to a higher marginal efficiency of private investment, demand for capital increases. This supply shock effect is operating in the real economy.

A way to view the supply shock effect on the interest rate is a shift in the marginal productivity curve of one country in a two-country diagram (Figure 2, Siebert 1990c) or a shift in the factor price frontier defining the maximum possible real factor prices. Similar to the production possibility set of an economy, the factor price frontier is also affected by the institutional arrangement of an economy as a third factor of production operating in the background. With the given technology and capital in place, the transition to the market economy makes the existing capital stock obsolete, for instance by changing the price for energy and the environment. The factor price frontier shifts to the left (arrow 1 in Figure 7). New technology and new capital will shift the factor price frontier to right implying a higher marginal productivity of capital and/or of labour. Moving from P to P'', implies a higher real interest rate and allows at the same time a higher wage rate. Note that the movement from P to P' corresponds to the J-curve effect.

FIGURE 7: The Factor Price Frontier



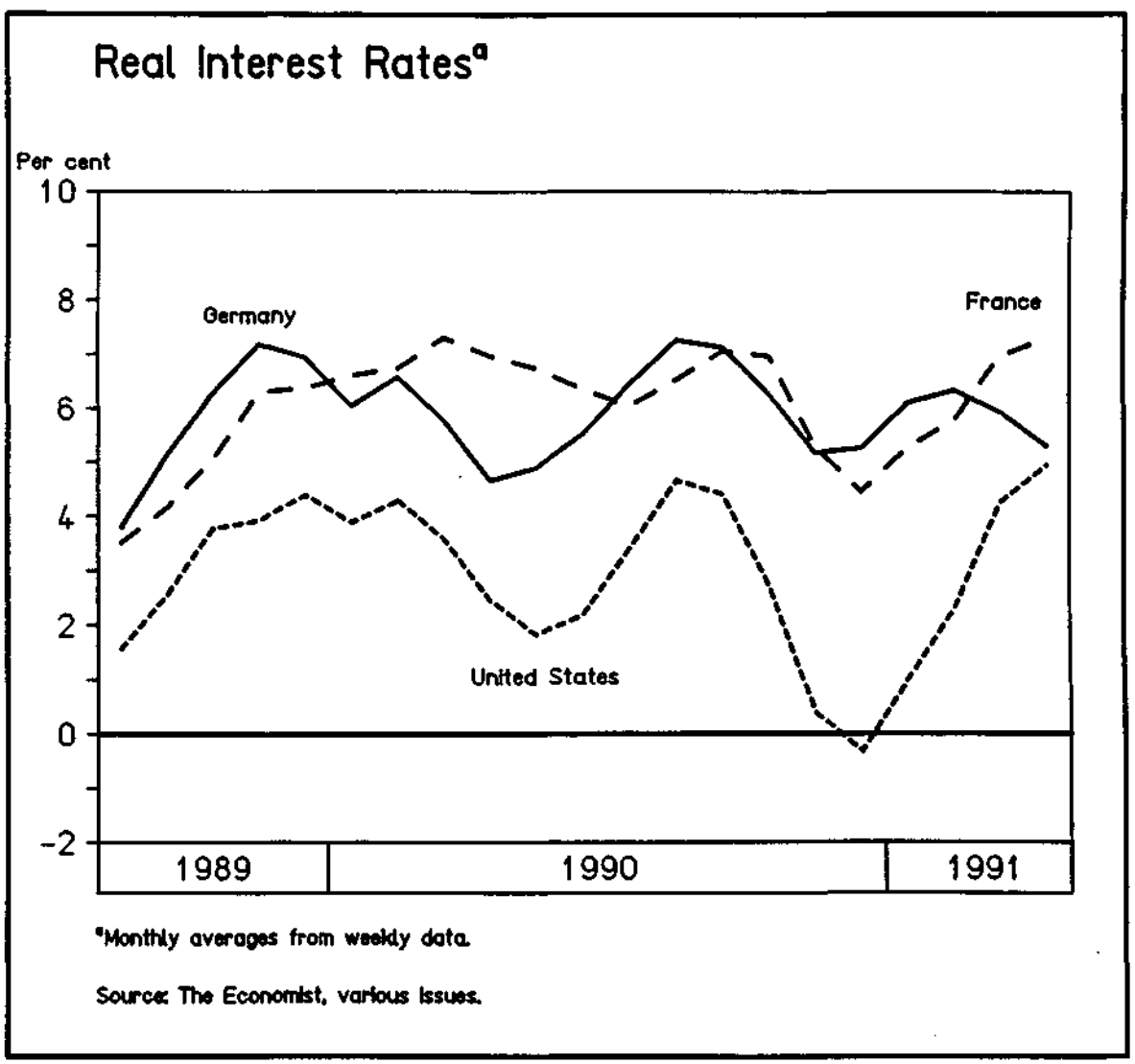
In addition to the supply shock effect for private capital, there is a supply side effect on the interest rate from infrastructure capital. With the infrastructure capital in Eastern Germany being inefficient, it "pays" to improve it, that is, infrastructure has a high marginal productivity.

The supply shock rise of the real interest rate will be influenced by the availability of capital. In an open economy, capital inflows reduce the tendency of the interest rate to rise. To what extend the supply shock can operate, will also depend on the institutional arrangement of financing infrastructure, for instance whether it is financed privately, by bonds or by taxation. In addition, government demand for capital is not only caused by spending on infrastruture, but by other areas of spending leading to a deficit. Thus, the interest rate will be driven up by a budget deficit, and the supply shock effect and government behaviour of spending may be difficult to be separated. Finally, the interest rate observed may reflect inflationary and currency expectations.

The data show an increase in the nominal long-term interest rate (on Government bonds) in Germany from below 7 % in the middle of 1989 to around 9 % after the announcement on the German monetary union on February 7, 1990. The nominal interest rate has remained on that level (until of January 1991 coming half a percentage down in February; Siebert, 1991c, Figure 7). The real long-term interest rate defined as the difference between the nominal interest rate on government bonds and the rate of change of the consumer price index, i.e. the ex-post real interest rate, rose from below 4 % (August 1989) to a range between 6 and 7 (October 1989 to March 1990; June to

October 1990 and January to February 1991; see Figure 8). Statistical analysis would be required to discriminate against other determinants of the real interest rate such as the business cycle situation in order to isolate the impact of German unification.

FIGURE 8: Long-Term Real Interest Rates, 1989-91[11)]



5.5. Fiscal Expansion versus Monetary Restraint

The transitional period will be characterized by expansionary fiscal policy. With transfers being largely financed by bonds, there is pressure for the interest rate to rise from the demand side in addition to a supply shock increase in the rate of return. If the Bundesbank sticks strictly to a monetary expansion according to the increase in production capacity, irrespective of the behaviour of other players in the arena of stabilization policy such as fiscal policy and the trade unions, the non-inflationary rate-of-output growth is realized by the interest rate: The interest rate rises and chokes off demand that might otherwise affect the price level. In addition, if the price level rises, the real supply of money is reduced implying again an increase in the interest rate.

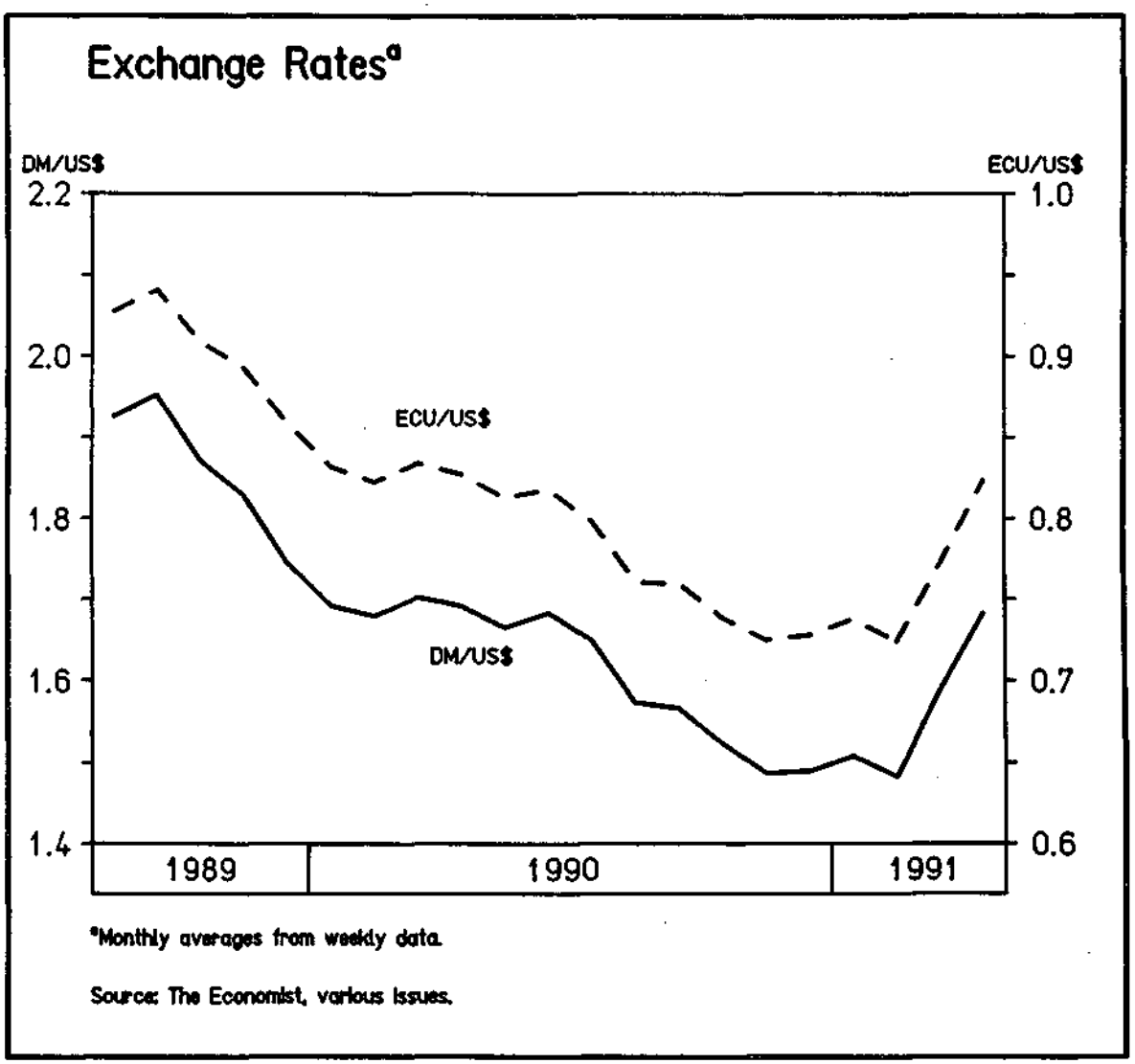
An alternative view is that the Bundesbank also takes into account the behaviour of the other players, i.e. of the fiscal policy and the trade unions. In such a context, an expansionary fiscal policy limits the manoeuvering space for the Bundesbank in the future, and monetary policy may very well have to be restrictive in order to maintain price level stability. Thus, the economic policy situation is similar to the early 1980s in the United States, and we may see a conflict between an expansionary fiscal policy and monetary restraint. In addition, high wage demands by the trade unions as in Western Germany in early 1991 may aggrevate the situation and may induce the Bundesbank to pursue a stricter monetary policy. Note that the two explanations of the behaviour of the Bundesbank clearly show the advantage of sticking to a rule , i.e. commitment, and thus

establishing credibility. Sticking to a rule excludes strategic behaviour of other players and moral hazard problems.

5.6. The Exchange Rate

From the supply side, there should be an appreciation of the D-Mark of post-wall Germany (Burda 1990, Lehment 1990). This appreciation can be motivated both from the capital account and the current account. From the capital account, the appreciation of the D-Mark is due to a higher marginal efficiency of capital, i.e. higher rates of return in Eastern Germany, to a larger capital inflow (reduced capital outflow out of the D-Mark area) and consequently to an increased demand for the D-Mark. From the trade account, the appreciation is a vehicle to bring about a reduction in the overall German trade surplus. This reduction is necessary because East Germany has a trade deficit thus reducing the overall German trade surplus. In 1990, the German current account surplus was 32,1 bn. DM lower than 1989. Of course, the appreciation of the D-Mark as shown in Figure 9 cannot only be explained by the German unification but is also due to other factors, for instance in the US or in the Soviet Union with political instability in the Soviet Union implying a depreciation of the DM. Moreover, it is open to what extent the appreciation had already been anticipated by the future market in 1990.

FIGURE 9: Exchange Rates, 1989-90 (weekly averages)[12]



In a world of tradeables and non-tradeables, the real exchange rate $w_R = wp_T^* / p_{NT}$ will appreciate as well. In such a context the price for tradeables(p_T^*) will be given by the world market. The price for non-tradeables (p_{NT}) will rise for a number of reasons: The income transfer to East Germany will increase the demand for non-tradeables, supply-side growth will lead to an increase in income, again raising the demand for non-tradeables, and infrastructure outlays in East Germany will increase the demand for non-tradeables. All these forces will raise demand for non-tradeables. Consequently, the price of non-tradeables will increase from the demand side. On the cost side, wages and production costs will rise. Moreover, price controls on non-tradeables will be lifted. At the same time, the transformation function between tradeables and non-tradeables will shift upward due to productivity gains and capital inflow. The bias in the shift in the transformation curve between tradeables and non-tradeables will influence the opportunity costs of producing non-tradeables. This supply-side effect may counteract the impact of the increase in demand on the relative price of non-tradeables. It is sufficient for an increase in the opportunity costs of non-tradeables if the shift in the transformation function is neutral or if it is biased in favour of tradeables. Then the price of non-tradeables would rise from the production side. Under this condition, the relative price between non-tradeables and tradeables (p_{NT}/p_T^*) rises, implying an appreciation of the real exchange rate.

The caveat on the role structural policy requires a caveat on the hypothesis of the appreciation of the DM. If an explicit structural policy with subsidies dominates the adjustment process, the inefficiencies of the old planning system will be perpetuated and the

rise in the marginal efficiency in Eastern Germany is limited. Subsidies put a burden on the governmental budget and increase debt, or taxes have to be raised. This outcome of a depreciation is stressed by Wyplosz (1991) and Melitz (1991) who come to the conclusion that the real exchange rate will depreciate, at least in the long run. The argument is that in the transitional period investment in Eastern Germany will be financed from capital inflows, and Germany will accumulate foreign debt; in the long run, debt has to be repaid, requiring a real depreciation to generate a surplus in the current account. According to this scenario, Germany would repeat the story of the US in the eighties, with an investment boom, financed by foreign debt, and a transitional appreciation which is corrected later on. Even if German unification is not financed by foreign debt, the intertemporal mechanism of stocks is operating: With a reduced current account, the stock of foreign direct investment and of portfolio investment by Germans is reduced, and consequently, the tendency of appreciation for the Deutsche Mark is weakened.

The depreciation of the DM hinges, however, very much on the assumption that the West German production function will be relevant for the united Germany, but it neglects the integration gains and the embodiment effect of new technoloy through investment in Eastern Germany. These phenomena change the German macro-economic production function (see Baldwin 1989, Romer 1986). The hypothesis of the embodiment effect of new technical knowledge indicates that Eastern Germany has a chance to incorporate a more modern technology than Western Germany and can thus enjoy the advantage of a latecomer. Moreover, economic integration can increase variety and product

quality and can thus stimulate exports in areas of inelastic international demand preventing negative terms of trade effect. Under these conditions, there will be a dynamic supply side effect over time counterbalancing the stock effect of a lower German capital accumulation abroad and not necessarily implying a long-run depreciation (unless counterbalanced by structural policy).

German unification represents a shock to a specific country of the EMS mechanism. This is the typical case of an advantage of flexible exchange rates, i.e. the case of a realignment. Thus, a long-run tendency for an appreciation of the D-Mark will put pressure on the EMS for a realignment. Without realignment, the EMS countries will experience an increase in the interest rate. This pressure for realignment will arise from the forces in the real economy such as supply-side growth, increased internal absorption and capital inflow into Germany. In addition, the ECU will be pulled up by the DM and thus can be expected to appreciate against the Dollar area, thereby reducing the competitiveness of ECU-area exports to the non-ECU currency area.

5.7. Brakesman versus Locomotive

The rise in the interest rate spreading to other countries is seen as a burden to these countries, and Germany is viewed as the brakesman of economic development elsewhere. There is no doubt, that higher

interest rates in Germany negatively affect investment elsewhere. From the point of view of gross national product of a country, however, lending capital abroad, means that a country's capital owners earn a higher income in Germany. With capital income no longer being limited to a specific group of society, these benefits can be widely spread.

But the increase in the interest rate is only part of the story. At the same time, there is an increase in import demand. In July - December 1990, German imports have increased by 14,4 % (constant 1980 prices), whereas exports stagnated (Table A5). Exports of France (13,6 %) Italy (19,5 %) and the Centrally Planned Economies (17 %) have increased considerably in nominal terms, and it is estimated that German economic growth has added half a percentage point to the GNP growth rate of the E.C. in 1990. From the current account, Germany plays the role of a locomotive. The conflicting view of brakesman versus locomotive stressed in the policy debate of international macroeconomics is misleading because the current account and the capital account are determined simultaneously by the same decisions. The net impact of the role of the brakesman and the role of the locomotive on a specific country will depend on the specific conditions in the neighbouring country. For instance, a country with a high foreign or a high government debt (Italy) and a low competitiveness of its exports (USA) may profit less or even be negatively affected. On average, we should, however, expect, that a positive supply shock in one country will have positive spillovers for the world economy as a whole.

6. Two Alternative Scenarios for the Future: Mezzogiornio versus the New Frontier

There are two conflicting economic scenarios for the united Germany: the Mezzogiornio versus the new frontier. In the worst case, politics can be characterized by the firefighter approach basically following an interventionistic route. According to this scenario, political pressure will be so strong that the existing inefficient firms will be subsidized supposedly in order to protect people. Such an approach of "Staatswirtschaft" will perpetuate the inefficiency of the East German economy; it will miss a chance to modernize its technology and to bring the obsolete capital stock up to date. This will be a severe drain on German resources, and Germany will be carrying a financial burden around its neck affecting the manoeuvring space of fiscal policy in the future. Moreover, a goal conflict between fiscal expansion and monetary stability is in the cards. In such a scenario, the drain on resources - Eastern Germany being a barrel without a bottom - will be translated by the international finance markets into a weak DM making monetary stability much more difficult.

The alternative scenario is that an interventionistic approach can be prevented and that the medium run and the long run positive effects of German unification will prevail after the important bottlenecks of ownership uncertainty and a deficient administration in Eastern Germany have been overcome. In this interpretation, German unification represents a new frontier, an investment opportunity or in Schumpeter's terms a case of "creative destruction". Integration gains, the new economic system and capital accumulation will play

their role. I personally believe this will be the relevant scenario for the future. Barring serious political mistakes as in structural policy, the economic integration of the two Germanies will be a growth stimulus for both Germanies, for Europe and for the world economy. With the German trade surplus being reduced in the transition period, Germany's demand for other countries' exports will increase. Europe, the United States and other countries will experience an increase in the demand for their exportables and will thus benefit from the German unification.

The case of Eastern Germany can be considered as a specific case in the transition of a socialist economy to a market economy in which the institutional infrastructure and the monetary system were provided externally and in which the adjustment of the real economy is the only remaining decisive issue. The transition of Eastern Germany thus can be considered as a laboratory experiment of real adjustment which is still to come for Eastern Europe (Siebert, et. al. 1991). Establishing the institutional infrastructure and creating monetary stability are additional problems to be solved in Eastern Europe. Some specific constraints of the German case such as high labour mobility, orienting the aspirations level to the West German standard and not having the exchange rate as a shock absorber do not hold for Eastern European countries, but these countries face different financial restraints with debt as a burden to start with and a lower possibility of attracting foreign investment.

Appendix

Table A1 - Structure of Employment by Sectors in East Germany and West Germany, 1989

	Eastern Germany		Western Germany	
	000	%	000	%
Agriculture, forestry and fishing	920	9.9	1,066	3.9
Energy and mining	295	3.2	472	1.7
Energy and water	120	1.3	282	1.0
Mining	175	1.9	190	0.7
Manufacturing	3,168	34.1	8,668	31.4
of which				
Manufacture of chemicals	152	1.6	638(a)	2.4(b)
Basic metal industries	183	2.0	673(a)	2.5(b)
Manufacture of machinery	548	5.9	1,123(a)	4.2(b)
Transport equipment	208	2.4	1,020(a)	3.8(b)
Electronics	398	4.3	1,175(a)	4.3(b)
Clothing industries	197	2.1	251(a)	0.9(b)
Textile industries	217	2.3	253(a)	0.9(b)
Food industries	336	3.6	720(a)	2.7(b)
Others	929	10.0	2,732(a)	10.1(b)
Construction	563	6.1	1,810	6.6
Wholesale and retail trade	721	7.8	3,600	13.0
Wholesale trade	258	2.8	1,289(c)	4.7(d)
Retail trade	463	5.0	2,254(c)	8.3(d)
Transport and communications	628	6.8	1,559	5.6
Railroads	245	2.6	285(a)	1.1(b)
Navigation	33	0.4	48(a)	0.2(b)
Other transports	233	2.4	662(a)	2.4(b)
Communications	127	1.4	532(a)	2.0(b)
Financial institutions and insurance	63	0.7	852	3.1
Restaurants and hotels	180	1.9	848(c)	3.1(d)
Services, public administration, defence and others	2,762	29.7	9,596	34.7
Total	9,300(e)	100	27,623	100

(a) Data for 1987. - (b) Calculated for total employment of 1987, i.e. 17,050.- (c) Latest available data of 1988. - (c) Calculated for total employment i.e. 27,249 - (e) This figure does not take into account apprentices prentices. Including them would raise the number of total employment by 353,000.

Source: DIW [1990a]; Staatliche Zentralverwaltung für Statistik [1989]; Statistisches Bundesamt [1989a]; own calculations.

Table A2: Adjustment in Transition, Data for Eastern Germany (a)

	GNP (b)	Industrial Output (c)	Total Employed (d) (e)	Self-Employed, Unpaid Family (d) Workers	Employees (d)	Net (f) Emigration	Commuters	Short-Time Workers	Registered Unemployed	New Firms (g)	Consumer Price Index	Monetary Aggregate M3
	bill. DM	1985=100	1 000	1 000	1 000	1 000		1 000	1 000		1989=100	bill. DM
July 1990		62.0				- 31.1		656	272	33 542	94.5	177.9
August 1990		53.2	8 759	362	8 397	- 31.1		1 500	361	27 866	94.9	176.2
September 1990		54.5				- 26.8	not available	1 729	445	26 127	96.6	176.5
October 1990	105.3	55.1				- 20.3		1 704	537	25 204	98.2	170.0
November 1990		56.9	8 193	418	7 775	...		1 710	589	22 992	98.1	163.3
December 1990		50.9				...		1 794	642	22 073	99.1	163.2
January 1991		...				...		1 841	757	18 673	106.4	...
February 1991		...				...		1 947	787	18 661	106.8	...
March 1991		...				...		2 002	808	...	107.7	...
April 1991		...				...		2 018	837	...	...	...

(a) - Including East Berlin. - (b) 2nd half of 1990. - (c) Not seasonally adjusted. - (d) Quarterly average. - (e) Including commuters. - (f) Data incompletely recorded. - (g) Net registrations.

Source: Gemeinsames Statistisches Amt der fünf neuen Bundesländer (1990); Deutsche Bundesbank (1990); Statistisches Bundesamt (1991).

Table A3: GNP and GDP of Eastern (a) and Western Germany
July 1, 1990 - December 31, 1990

	Eastern Germany		Western Germany	
	bill. DM	percent	bill. DM	percent
Gross National Product	105.3	100.0	1 269.3	100.0
Private Consumption	91.7	87.1	669.8	52.8
Government Consumption	36.6	34.8	240.1	18.9
Machinery and Equipment	9.6	9.1	127.4	10.0
Construction	14.1	13.4	144.6	11.4
Exports	32.7	31.0	454.9	35.8
Imports	70.6	67.0	376.5	29.7
Gross Domestic Product	104.5	...	1 272.3	...
Gross Value Added	95.5	100.0	1 130.6	100.0
Agriculture, Forestry and Fishing	3.7	3.9	29.5	2.6
Manufacturing, Engery, Mining and Construction	47.5	49.7	489.4	43.3
Trade, Transportation and Communication	16.0	16.7	184.8	16.3
Services	18.4	19.3	358.6	31.7
Government, Private Households and Non-profit Organisations	21.4	22.4	163.3	14.4

(a) Including East Berlin.

Source : Statistisches Bundesamt 1991b.

Table A4 Average Monthly Wage per Employee[a)]

		Economy	Mining and Manufacturing	Construction	Retail	add.: Western Germany
1989	I Quarter	1271	..	..	..	3075
	II	1118	..	..	..	3210
	III	1125	..	..	..	3307
	IV	1176[b)]	..	..	..	3771
1990	I Quarter	1402[b)]	1090	1124	941	3194
	II	1412[b)]	1233[d)]	1335[d)]	1000[d)]	3373
	III	1283[c)]	1457[d)]	1702[d)]	1214[d)]	3450
	IV	1436[c)]	1602[d)]	1942[d)]	1544[d)]	3971

a) Monthly in East Marks, and in DM since the third quarter of 1990. Data for the economy and the sectors may not be consistent.

b) Incldуing special payments due to the discontinuation of funds and reserves prior to the currrency conversion.

c) Wage per employee (including short-time workers).

d) For full-time employees.

Source: Statistisches Bundesamt (1991b)

Table A5 **Foreign Trade of Germany**

	Exports			Imports		
	1989	1990 Jan. - June	1990 July - Dec.(a)	1989	1990 Jan. - June	1990 July - Dec.(a)
	Percentage change over corresponding period of previous year					
At current prices						
Total	12.9	1.9	4.5	15.2	4.7	15.0
EC-countries	14.4	-0.3	0.4	13.7	5.3	17.0
of which:						
France	18.3	-0.3	-0.3	13.8	2.9	13.6
Italy	15.8	1.6	-0.6	12.3	10.4	19.5
United Kingdom	12.2	-7.0	-8.2	13.9	2.9	10.8
Other industrial countries	9.1	4.5	-1.2	17.1	3.1	7.4
LDCs (without OPEC)	17.9	8.0	2.7	13.6	2.6	7.8
OPEC	6.0	9.6	13.0	14.2	0.9	25.6
Centrally planned economies	18.5	-1.4	95.0	22.9	15.0	51.4
At 1980 prices						
Total	8.1	2.2	0.3	7.3	8.3	14.4
EC-countries	8.4	-0.67	-0.7	6.8	7.2	13.8
Other industrial countries	6.7	4.9	1.1	9.4	7.6	14.4
LDCs (without OPEC)	11.0	8.4	3.4	7.1	11.7	19.4
OPEC	1.2	4.1	11.0	-3.0	10.4	7.9
Centrally planned economies	15.8	3.6	-6.1	9.2	13.6	17.0

(a) The figures at current prices include transactions of the former GDR with foreign countries.

Source: Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank, Reihe 3, Zahlungsbilanzstatistik. - Statistisches Bundesamt, Fachserie 7, Reihe 1, Zusammenfassende Übersichten für den Außenhandel. - Own calculations.

Footnotes:

* I appreciate critical comments from Alfred Boss, John Black, Michael Burda, Bert Hofman, Rainer Maurer, Maurice Obstfeld, Michael Rauscher, Birgit Sander, Klaus-Werner Schatz, Holger Schmieding, Klaus-Dieter Schmidt, Peter Trapp, Charles Wyplosz, and participants of the Economic Policy Panel meeting in London, April 18. and 19., 1991. The paper includes data that were available up to May 10, 1991.

1 The distinction of property rights and ownership uncertainty is crucial for the comparison of the German, and Eastern European and the USSR case. In the German case, property rights are clearly established, but there is uncertainty with respect to ownership. In the USSR and to some extent in Eastern Europe, property rights themselves are uncertain.

2 Data for 1991 are not available.

3 The Marshall plan is often cited as one important factor contribution to a quick recovery in Western Germany. But it accounted only for 1.4 % of West German GNP whereas West German transfers to East Germany make up more than half of the GNP in Eastern Germany.

4 The foreign currency coefficient rose from 2.4 (1980) to 2.9 (1985) and to 4.4 (1988) indicating a depreciation of the East German Mark.

[5] This statement does not contradict Table A4 where the wage level in Eastern Germany is roughly 40 % of the West German level. The average East German wage has been calculated by dividing the wage sum by the number of persons employed. This number includes more than 1.7 million short time workers in the last quarter of 1990.

[6] An interesting question is to what extent subsidies to new capital and subsidies to labour benefit the price of the immobile factor land and increase land prices.

[7] Note the unusual increase of the monthly wage in the first two quarters of 1990 prior to the currency union (Table A4).

[8] For a back-of-the-envelope calculation of the capital stock of Eastern Germany after adjustment see Siebert (1990c).

[9] This requires high anticipatory capabilities especially for an open economy where financing may affect exchange rate expectations, exchange rates and thus the asset position of individuals as well as the real side of the economy.

[10] The definition is different from that in tables 5 and 7.

[11] Monthly averages, Data: The Economist, various Issues.

[12] Monthly averages, constructed from the official daily figures, Blick durch die Wirtschaft.

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